

Achieve the impossible

ABPROG Programmer for AVDI User Manual

Version: 2.4

www.ABRITES.com

	List of revisions								
Date	Chapter	Description	Revision						
01.10.2015	ALL	Document revised	2.0						
13.01.2017	ALL	Document revised	2.1						
01.12.2017	ALL	Added keys for renew	2.2						
14.06.2018	ALL	Added EWS reading	2.3						
14.08.2018	1	Added ZN057 adapter	2.3						
07.11.2019	ALL	PSA key renewal added	2.4						

1 INTRODUCTION

ZN030-ABPROG and ZN031-M35XXX/SPI/I2C Adapter together with ABPROG Programmer software allows you to erase and write SPI,I2C,Micro Wire EEPROM memory(35xxx,95xxx,24xxx,93xx) with and without incremental registers , read the SSID of the NEC KEY, erase the NEC chip and then program it again.

ZN030-ABPROG and ZN031-M35XXX/SPI/I2C Adapter together should be used with ABRITES software produced by Abrites Ltd.

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1.1 Scope of the manual

This document describes software and hardware installation of kit for EEPROM and MCU memory programming.

The basic package of kit for EEPROM and MCU memory programming:

• ZN030-ABPROG



ZN031- M35XXX/SPI/I2C Adapter



• SO8 –DIP8 Adapter



• ZN032 - Adapter with socket for NEC MCU (optional)



• ZN034 - ABPROG flat cable



The Abrites ABPROG EWS3 Reader (ZN055 - ABPROG EWS3 adapter) is an assistance tool designed to allow you to read the EWS3 Dump from the EWS3 cars in order to make a key for them, this tool will be very useful when working on the BMW E46/ E53 model cars. The tool attaches to the ABPROG programmer which attaches to the AVDI interface in order to read the EWS3 dump.

EWS3 dump. Once you have read the EWS3's dump you will be able to save it on your computer. After you do that you will be able to load this dump in the PROTAG software and program a key using it. With the help of the EWS3 Adapter you will no longer need to use third party EWS3 Programmers to read the EWS dump.

- 1. ZN055 ABPROG EWS3 adapter
- 2. Connection diagram and Boot Pin on EWS





• ZN057 EEPROM Adapter

The ZN057 Adapter is designed to make EEPROM reading/writing easier, where the need to desolder/ solder eeprom is skipped while the adapter cables can be directly soldered to any connection point on the PCB or the EEPROM.





The photo below shows how to connect to a BMW BDC and a FEM unit to read the EEPROM:





FEM EEPROM connection:





2 SYSTEM REQUIREMENTS

Minimum system requirements – Windows 7, Pentium 4 with 512 MB RAM USB port with supply 100 mA / 5V +/- 5%

3 SUPPORTED DEVICES

-M35080VP M95080 -M35080V6 M95160 -D080D0WQ M95320 -D160D0WQ M95640 -M95010 M95128 -M95020 M95256 -M95040 24C01 -M95080 -M95160 -M95320 -M95640 -M95128 -M95256 -24C01 -24C02 -93C76 -24C04 -93C86 -24C08 -24C16 -24C32 -24C64 - 24C128 - 24C256 - 24C512 - 24C1024 -93C46 -93C56 -93C66 -RENAULT BCM (X95) -W164,W166,W203,W204,W210,W211,W212,W216,W220,W221 MB EZS Reading hash without password

4 GETTING STARTED

We suppose that already your AVDI interface is configured and fully working. You can receive optional separate installation file for your kit EEPROM and MCU memory programming.

Software is a windows executable file named 'SetupInterface_ABPROG_VVxxxx.exe' where VVxxxx is your interface identification number.

4.1 Software installation steps

Please start the executable file above to initiate installation procedure and follow the onscreen instructions.

Depending of your operation system and settings you can be asked to confirm starting of installation procedure.





Press "Next" button to proceed with the installation.

Press "Next" button to proceed with the

installation.

Read carefully license agreement and select "I accept the agreement" if you accepting all. Then press "Next" button.

If you not agree press cancel to interrupt installation procedure.



Press "Next" button to proceed with the installation.

iagnostic Software into	
	the following folder.
ike to select a different	folder, click Browse.
ware for ID 170007	Browse
s required.	
	ike to select a different ware for ID 170007

Press "Next" button to proceed.



If you don't want desktop icons uncheck the checkbox about creation of icons. Press "Next" button to proceed.

Press "Install" and wait until installation complete.

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Be sure that checkbox about installation of interface's USB drivers is set especially if you installing for first time Abrites Diagnostic Software.

Press "Finish".



Depending setting of your operation system you can be asked to confirm installation of USB drivers.

Press "Yes".











4.2 Connection of the programmer to the interface

4.3 Starting of the software

When programmer is ready and connected to the interface you can start the software.

Setup	EEPRON	1		-	s	TI	M3	508	70 E	7P	1	M3	50	80	V6			-
4.0	00000000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
Carl	00000010	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	 1
Altar	00000020	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
Read	00000030	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	00000040	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
30	00000050	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
00000	00000060	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	 1
Program	00000070	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
riogram	08000000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	00000090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
010210	000000A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
Carrier	000000B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	 -
Verify	000000000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
-	00000000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
\wedge	000000E0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	000000F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
\sim	00000100	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
Erase	00000110	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	00000120	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
(CA)	00000130	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	00000140	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
-	00000150	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
LOad	00000160	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	00000170	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	00000180	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	00000190	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
Save																		
	•																	
	Started																	

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5 ERASING INCREMENTAL EEPROM

Once you select the "EEPROM" use button "Erase Incr.".

setup	EEPROM -	ST M350	80VP /	M35080V6
ha.	0000000 00 00 00	00 00 00 00	00 00 00	00 00 00 00 00 00
	00000010 00 00 00	00 00 00 00	00 00 00	00 00 00 00 00 00
ead	00000020 00 00 00	00 00 00 00	00 00 00	
			00 00 00	
-	00000050 00 00 00	00 00 00 00	00 00 00	
	00000060 00 00 00	00 00 00 00	00 00 00	00 00 00 00 00 00
	00000070 00 00 00	00 00 00 00	00 00 00	00 00 00 00 00 00
ann	00 00 00 0800000	00 00 00 00	00 00 00	00 00 00 00 00 00
	00 00 00 00 00 00 00	00 00 00 00	00 00 00	00 00 00 00 00
	Erasing			···
iny				
~				
ase				····
	00000120 00 00 00	00 00 00 00	00 00 00	00 00 00 00 00 00
	00000140 00 00 00	00 00 00 00	00 00 00	
	00000150 00 00 00	00 00 00 00	00 00 00	00 00 00 00 00 00
ad	00000160 00 00 00	00 00 00 00	00 00 00	00 00 00 00 00 00
_	00000170 00 00 00	00 00 00 00	00 00 00	00 00 00 00 00 00
	00000180 00 00 00	00 00 00 00	00 00 00	00 00 00 00 00 00
	00000190 00 00 00	00 00 00 00	00 00 00	00 00 00 00 00
ve.	I < []			,
- N	Started			

Keep in mind that the time to erase "M35080VP/M35080V6" could reach 90 seconds!

ABRITES Progra	ammer for AVDI 1.1	X
Setup	EEPROM ST M35080VP / M35080V6	•
		<u> </u>
Bead	00000020 FF	
	00000000 FF F	
	00000000 FF F	=
Program	00000070 FF	
010110	00000090 FF	
Verify	000000B0 FF	
	000000D0 FF	
🥏	000000F0 FF F	
Erase	00000110 FF	
	00000120 FF	
Load	00000140 FF	
	00000160 FF	
	00000180 FF	
Save	•	•
Exit	Started Start erasing Start reading	

After erase finish you can write the new data using the button "Load" and "Prog Incr.".

6 CONNECT "ZN030-ABPROG" WITHOUT "ZN031-M35XXX/SPI/I2C ADAPTER"

You can use your "ZN030-ABPROG" for programming and reading of ordinary SPI EEPROM memory as M95080, M95160, M95320, M95640, M95128, M95256 without using "ZN031-M35XXX/SPI/I2C Adapter". To do this you must connect the memory to DB25 connector in the manner shown in the picture.



Keep in mind that the power from "ZN030-ABPROG" is 5V DC!

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7 READ SSID , ERASING AND PROGRAMMING OF NEC KEY FOR MERCEDES

All existing customers should have received a NEC board, on which to solder the NEC chip. For all existing customers - if you send to support@abrites.com the dump from the EZS we will send you back a working key dump and you will not need to worry about virginizing ECU, 7GTronic and so on.

7.1 Erasing NEC chip

The NEC chip should be soldered on the NEC PCB, which is provided by Abrites. Here is how the erasing procedure looks like:



A HUILS FIOGRAM	ner for AVDI 1.2
Setup Read	NEC_KEY MCU ON NEC PCB
200-	
Pregram Verify	rasing device
Erase	Cancel
Save	
() E xit	Start reading Start reading Start reading Start reading Start reading Start reading
	ner for AVDI 1.2
Setup 0 Read	NEC_KEY MCU ON NEC PCB
Program	ABPROG KEY Erase finished successfully!
Erase Load	<u>ОК</u>
Save .	Start erasing
Exit	Start erasing

7.2 Reading SSID

P NEC_KEY	MCU ON NEC PCB	
d 00000000 7	C 1F 2F A3 AF 6C 42	I./1B
<u>m</u>]	ABPROG	×
	SSID = A0 AF 6C 42 KeyNo = 3 Usage = 3	
Start reading Start erasing Start writting		

7.3 Programming NEC chip

Setup NEC_KEY MCU ON NEC PCB	ABRITES Programmer for AVDI 1.2			2
Image: Solution of the second seco	Setup NEC_KEY	MCU ON NEC PCB		<u> </u>
Program Look in: bin mercedes key 	Open Open		×	
Name Date modified Verify Image: Rey0_A0AF6C42_used_051.bin 19.11.2012 r. 13:37 Image: Rey2_A2AF6C42_used_051.bin 19.11.2012 r. 13:37 Image: Rey2_A2AF6C42_051.bin 19.11.2012 r. 13:37 Image: Rey3_A3AF6C42_051.bin 19.11.2012 r. 13:37	Program Look in:	bin mercedes key	⇐ 🗈 📸 📰 ◄	
Save Start erasing	Verify Verify Erase Load	AF6C42_used_051.bin AF6C42_used_051.bin AF6C42_used_051.bin BAF6C42_051.bin III Type: BIN File Size: 160 bytes Date modified: 19.11.201 BIN files	Date modified 19.11.2012 r. 13:37 19.11.2012 r. 13:37 19.11.2012 r. 13:37 19.11.2012 r. 13:37 19.11.2012 r. 13:37 • • • • • • • • • • • • •	
Start reading	Save Start erasing			+
Exit Start erasing	Exit Start erasing Exit			



Programming the CPU directly on the key using ABPROG flat cable.



NOTE: FOR CUSTOMERS WHO HAVE "ZN002" AFTER FIRMWARE UPGRADE CAN BE USED AS "ZN030-ABPROG".

To read the immobilizer with the ABPROG you need to solder as showed on the pictures below.



In the ABPROG you should select "MCU" and the "Renault (X95) BCM" option.











For Renault and Audi BCM Blue - 5 Red - 20 Black - 14 Green - 25 Brown - 6 Yellow – 13

8. Hash reading without password from the EZS via IR. Password reading from NEC MCUs version 57

8.1 EZS hash reading through IR

Please use the ZN036 adapter to connect to the EZS. From the drop down please select MB_EZS_IR and the model i.e. W204. Press the read button and place the IR adapter in the key fob. After reading the key fob the hashes will be displayed.

Please note that for some models you will need to take the key in and out of the fob multiple times.



8.2 NEC MCU version 57 password reading

Place the NEC processor from the key on the adapter plate (part of the ZN036). Press the "READ NEC KEY PASSWORD" and wait until the reading is over.

This process can take from several seconds up to a few minutes. After successfully reading the password you will see the SSID and password fields among other details.

ABRITES Programmer	for AVDI	1.6				www	ı.abri	tus7	2.co	m					x
Setup MI	B EZS	IR 🔻	W164												•
	ZS		,					1 [EZS	l iti	li	l hu Eastanu			_
00000	SSID	: A80040B	3							Tran	spor	t Protection	OFF		
Read Si	ervice	EA102CE	E4BCA205	58						Pers	onali	ized EIS	0		
	Key 1	4957593	919C32A54	1 Ena	abled	Used			\checkmark	Activ	ateo	EIS			
	Key 2	61E0E2D	F5D71F29	14 Ena	abled	Used			V						
Program	Key 3	9465D80	8B10F61A	4 Ena	abled	Used			Key-	SID:	A07	'6C5D4	S	tatus: 04	1FC
	Key 4	761829B	FDD7F954	E Ena	abled	Unused	l								_
010210	Key 5	8E6BC40	3BD 00921	C Ena	abled	Used			Passv	vord:	7A3	37480B023	35D72 F	ROM: [57	7
Verify	Key 6	A3874B3	A95A1329	B Ena	abled	Used			Соц	unter:	196	604		Key: 5	
	Key 7	4F37401	724DA573	6 Ena	abled	Unused					D		D		-1
	Key 8	2E1F195	840CCD 07	C Ena	abled	Used					Hea	ad NEU Key	Passwo	ora	
Erasa 000	000000 ם	3 FF FF	FF FF F	F FF	FF FF	FF F	F FF	FF	FF	FF	FF				•
	000010 0	F 49 57	59 39 1 57 43 0	9 C3 .	2A 54	BC 0	0 03 9 B1	D6 OF	57	9B	03 0F	.IWY9*	۲۲	W	=
	000030 0	0 07 76	18 29 B	FDD	7F 95	4E B	5 00	07	8E	6B	C4	v.)	N	.k.	
	000040 0	3 BD 00	92 1C 2	B 00	07 A3	87 4	B 3A	95	A1	32	9B	+	K:.	.2.	
Load 00	000050 B 000060 1	9 58 40	CC D0 7	C 16	24 DA 00 OF	57 S EA 1	0 00 0 2C	6E	4B	CA	20		,.won.	к.	
	000070 5	8 21 00	03 2E E	D 39	EA 1D	FA D	B 23	63	00	OF	61	X!9.	#c	a	
	000080 E 000090 6	1 A4 9E	5D 71 F	294 618	56 00 29 BF	07 9 DD 7	4 65 F 95	108 4E	08 B5	B1 00	OF	av.)	/e. N		-
Save 🗸														1	
Re	ad KEY Sta	atus					_	-		-					*
Be De la Companya de la Compa	ad KEY Pa ad KEY Sta	ssword atus													
Exit Re	ad KEY Pa	ssword													+
,															

When you have the full dump, the hash files + the password you can save the file and use it later in order to generate the dumps using the Abrites diagnostics for Mercedes.

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ZN033 NEC MCU Adapter



Using the ZN033 NEC MCU Adapter, you will be able to solder NEC processors used in Mercedes keys, read them and make them virgin. The supported versions are V57 and some V51.

If you already have an ZN033 NEC MCU Adapter, you might have to desolder the resistor as shown in the below pictures.





Once the NEC MCU is soldered to the ZN033 Nec MCU Adapter, the ZN033 has to be connected to ZN045 ABPROG. The ABPROG can be directly connected to AVDI as shown in the picture below:



ZN032- Adapter with Socket for NEC MCU

The ZN032 Adapter is used just like the ZN033 Adapter, but using it there is no need to solder the NEC MCU from the key PCB to the ZN032. You can very easily place the NEC inside the socket and close it. Again, the ZN032 Adapter can be connected to ZN045 that goes into the AVDI DB-25 port.



For opening the software and proceeding with the procedure, simply open the ABPROG Programmer For AVDI Software and choose "MB NEC KEY" and the revision of the ABPROG's PCB as show in the picture below.

BRITES Progr	ammer for AVDI 1.7	www.abrites.com	
Setup	MB NEC KEY -	MCU ON NEC PCB REV.4	
(A)	0000000 00 00 00 0	0 00 00 00 00 00 00 00 00 00 00 00	
00000	00000010 00 00 00 0	0 00 00 00 00 00 00 00 00 00 00 00 00	
Bead	00000020 00 00 00 0	0 00 00 00 00 00 00 00 00 00 00 00	
11000	00000030 00 00 00 0	0 00 00 00 00 00 00 00 00 00 00 00 00	
-	00000040 00 00 00 0		
Aller			
Program			
Erase			
Doad Load			
Save	¢		
0	Started		
Exit			

After choosing the desired option, you can proceed with reading, programming, erase and verify upon erasing the information if it is still present.

Key PCB Renewal using ABRPOG

Using this function you will be able to renew Hitag printed circuit board keys, so as to reuse them for programming to other vehicles. In order to renew a key, you will have to open the plastic cover and solder the cables to from the ABPROG add-on supplied:

Note: This ABPROG function will allow you to use any HITAG Key with any vehicle that uses HITAG as long as the keys are from the same HITAG Generation.

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Description of the applicable cable colors used for soldering							
RED	+ BAT						
BLACK	- GND						
GREEN	DATA						
WHITE	CLK (clock)						

After the soldering, the DB-25 male side of the add-on needs to be connected to the DB-25 female connector of the ABPROG ZN045. After which, the male DB-15 part of the ZN045 needs to be connected to the female DB-15 connector on the AVDI.

The following photos will show you how the connection points on the key PCBs look like, so that you can proceed with the soldering.

All Porsche Hitag type of keys (new Porsche Keys) have the following soldering points:





Audi BCM2 keys have the following soldering points



BMW F-Series 1st type Keys have the following soldering points:

BMW F-Series 2nd type Keys have the following soldering points:





BMW E-Series Keys have the following soldering points



Volvo Keys have the following soldering points:

PSA keys have the following soldering points:









The last added keys for renew are the following:

*AUDI 8T0959754 433MHz R 233.453.111 02 *AUDI 8T0959754A 315MHz R 233.453.111 02 *AUDI 8T0959754F 433MHz K 233.453.111 02 *AUDI 8T0959754F 433MHz K 233.453.111 05-06 *AUDI 8T0959754F 433MHz K 233.453.111 05-06 *AUDI 4G0959754G 315MHz K 233.453.111 05-06 *AUDI 4H0959754G 315MHz K 233.453.111 05-06 *AUDI 4H0959754K 868MHz K 233.453.111 05-06 *AUDI 8T0959754 433MHz R 233.453.111 05-06 *AUDI 8T0959754D 868MHz R 233.453.111 05-06 *AUDI 8T0959754G 315MHz K 233.453.111 05-06 *AUDI 4G0959754BP 315MHz K 233.453.211 01-02 *AUDI 4G0959754DB 315MHz K 233.453.211 01-02 *AUDI 4G0959754DC 315MHz K 233.453.211 01-02 *AUDI 4H0959754DA 433MHz K 233.453.211 01-02 *AUDI 4H0959754DB 315MHz K 233.453.211 01-02 *AUDI 8K0959754BR 868MHz K 233.453.211 01-02 *AUDI 8K0959754D 868MHz K 233.453.211 01-02 *BMW F HUF5662 315MHz *BMW F HUF5663 433MHz *BMW F HUF5767 433Mhz *BMW F 5WK49662 433MHz *BMW F 5WK49663 315MHz *BMW E 5WK49127 315MHz REMOTE *BMW E 5WK49145 868MHz KEYLESS *BMW E 5WK49147 315MHz KEYLESS *PORSCHE 7PP959753BN 434MHz *PORSCHE 7PP959753BQ 315MHz *PORSCHE 7PP959753BM 315MHz *PORSCHE 7PP959753BS 434MHz *VOLVO 5WK49266 900MHz *RANGE ROVER 5E0U40247 434MHz *MITSUBISHI G8D 644M *PSA 21676652 *PSA E33CI002 *PSA E25CI009 *PSA E28CI01B *CHR JEEP DODGE KOBOTO4A *BUICK 13500224(13584825) 315MHz *BUICK 13500225(13584825) 315MHz *OPEL ASTRAJ/INSIGNIA 13500234 433MHz 3BTN *CHEVROLET 13500319(13584829) 315MHz 5BTN *CHEVROLET 13575163 433MHz 2BTN *CHEVROLET 13575175 433MHz 3BTN *CHEVROLET 13500221 315MHz *GM KEYLESS 433MHz 5BTN *CADILLAC NBG009768T 315MHz 5BTN KEYLESS

Note: If a wiring diagram is missing in the software, please send an email to support@abrites.com together with your AVDI ID and a picture of the key you want to renew with its product version. Manual version: 2.4 33 The following photos will show you how a soldered PCB looks like. The Example is of a BMW F-Series HUF Key PCB:



You can connect the adapter to the ABPROG adapter to AVDI as shown in the picture below:





Once the cables of the ABPROG Adapter are soldered to the PCB, the ABPROG software can be started:



Select the "PCF" Option from the drop-down menu and the PCB model you are about to renew. After the desired options are selected, you can click on "Program" to renew the key and make it virgin. Click on "Yes" to confirm the renewal process.

ABRITES Programmer for AVDI 2.0	www.abrites.com	\times	ABRITES Programmer for AVDI 2.0	Day	until HW synchronization: 24	×
Show/Hide Connection Diagram	PCF - BMW F HUF5661 868Mhz	•	Show/Hide Connection Diagram	PCF	BMW F HUF5661 868Mhz	•
Pingan Sove	×		Picese Weit. Program	nming device	×	
Verity	Start programming? Ves No		Verity Erano		Cancel	
Sittip	*	э	Setup	<		>
Exit	Started Start willing_		Ext	Started Start wilting		

Once the procedure is completed, you will see the "KEY Write finished successfully message". This means that the key is now renewed and made virgin. You can continue with programming the key to another car.

ABRITES Programmer for AVDI 2.0	www.abrites.com		×
Show/Hide Connection Diagram	PCF	BMW F HUF5661 868Mhz	
Read Load			
Program Save	ABPROG	×	
Verify	KEY Write f	inished successfully!	
Erase		<u>ок</u>	
Setup	<		>
E wit	Started Start writting		