EWS Editor

Version – 3.2.0

1. #System functions

This device is designed to work with factory anti-theft system (immobilizer) **EWS.**
Immobilizer **EWS** has been installed on the **BMW AG** vehicles since 1996. Cars such as **BMW 3 series (E46), 5 series (E39), 7 series (E38), X3 (E83), X5 (E53), Z4 (E85)** and other vehicles of **BMW AG - MiniCooper, Rover 75, Range Rover** are equipped with this system.

2. #Features

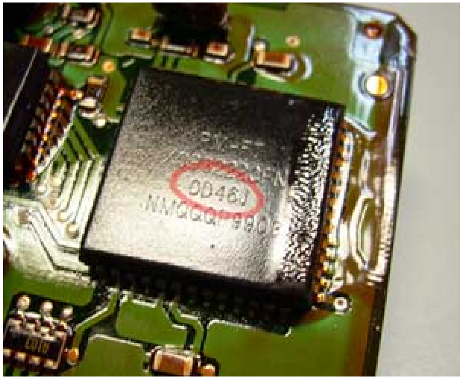
- **USB** interface
- No **AC/DC** adaptor required
- All modifications of factory immobilizers are supported: **EWS1, EWS2, EWS3, EWS3+ (hw:4), EWS4 (hw:5, hw:6)**
- Reading and writing of **EWS3** and **EWS3+** via k-line [1)]
- Automatic version determination of **EWS** via reading the memory dump
- Adding new keys
- Adding used keys (if key's password is available)
- Resetting used keys into a "new" state (if key's password is available)
- Recovery of key's synchronization (matching keys)
- Blocking and releasing vehicle access via the specific key
- Recovering of coding data (vehicle's specific information)
- Changing **EWS** parameters (product number, date of manufacturing, etc)
- Resetting used **EWS3** (loading default values)
- Changing **VIN** number which is contained in **EWS** unit
- Changing **VIN** number which is contained in key (since 1998)
- Changing mileage in **EWS** (contained in **EWS** since 1998 and on)
- Changing mileage in key (contained in key since 1998 and on)
- Software creates log-file of read and written keys, which helps to exclude the error of casual blocking key with password, etc.
- Possibility of control and recovery of variable part of matching code for **EWS** and engine control unit **DME/DDE**
- Configuring new transponders **PCF7930** and **PCF7935** to work with **EWS** unit
- Supports **FSU** (Firmware Secure Update) from Internet.

[1)] Except processors with mask set D47J. **EWS** unit equipped with this processor has read protection, attempt of reading the processor with this mask set results **EEPROM** data loss. To recover the data in **EWS3** unit with processor **(**D47J**)** use the function **[Reset to factory defaults]**

3. #Checking of MOTOROLA processor mask set which is used in some EWS units

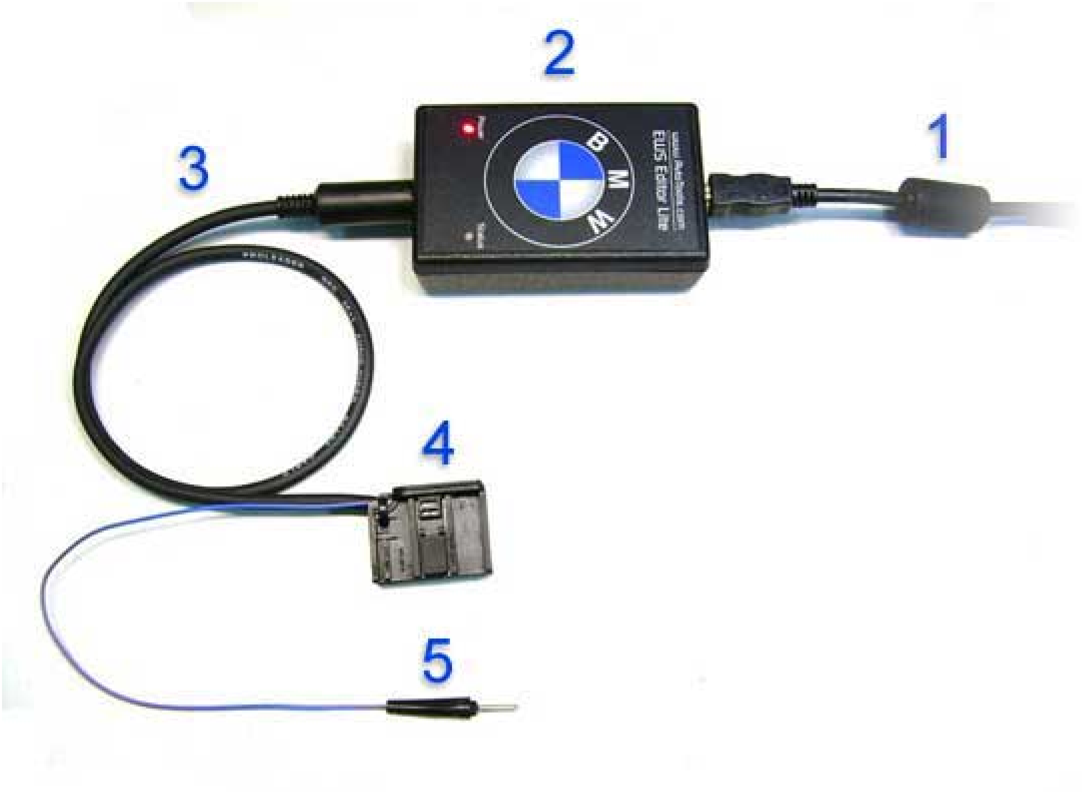
Before proceed to reading of **EWS** data using the function **[EWS Read]**
Read the marking (maskset) plotted on processor (picture):

- Mask set D47J – old versions of **EWS**1, **EWS2** and **EWS3 hw:2 sw:5**. Refer to **#Recovering of EWS**
- Mask set D46J – new versions of **EWS3** and **EWS3**+. This processor does not contain unpleasant surprises, refer to **[EWS Read]**



Location of mask set on the processor

4. #System appearance and purpose of cables



1. **USB** cable
2. **EWS Editor Lite** Unit
3. **EWS 3/3+** cable
4. **EWS3/3+** connector
5. Programming initialization needle

5. #Indication

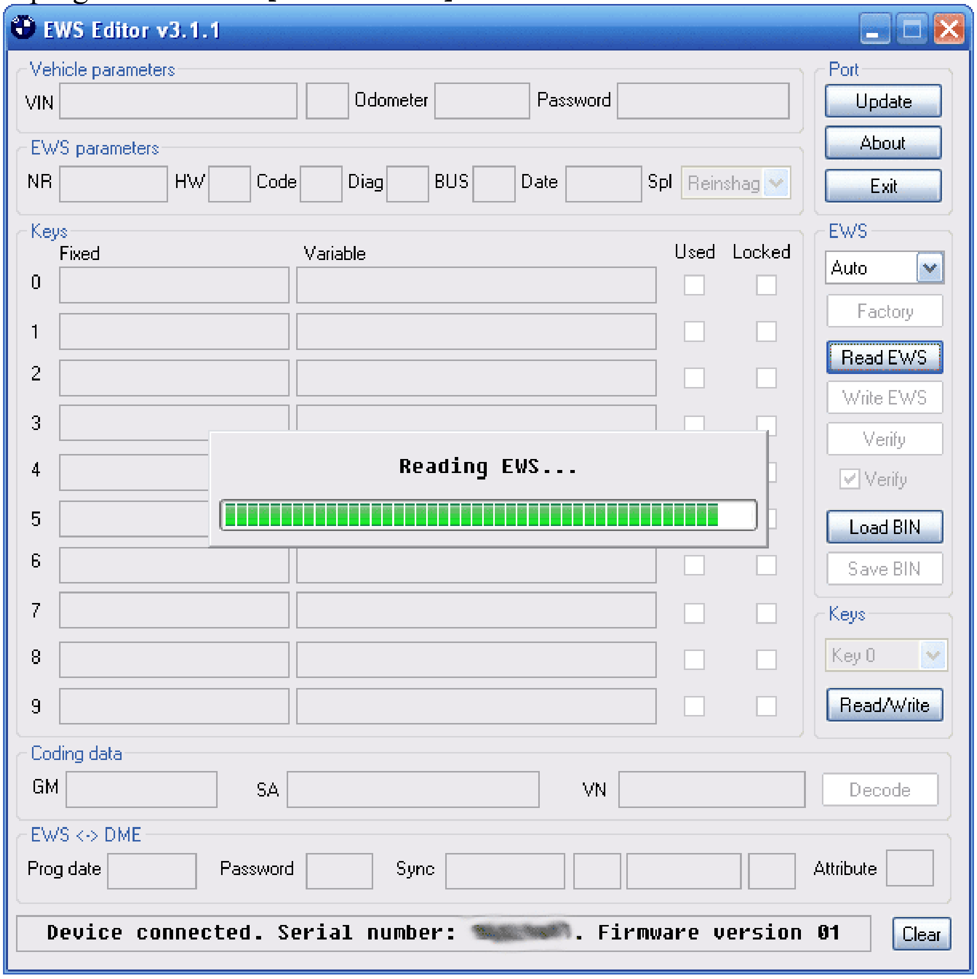
- **Power** LED
- **Status** LED- bi-colored LED for current system status control (reading/writing etc.)

6. #Driver Installation

1. Start **EWS_EditorInst.exe** file
2. Select installation path. The default path is C:\Program Files\AvtoTools\EWS_Editor
3. Please connect device to USB
4. Install drivers from folder C:\Program Files\AvtoTools\ EWS_Editor\Drivers

7. #Reading EWS

- Unplug and detach **EWS3** unit from the car. Attaching points of **EWS3** unit can be found in **BMW TIS**
- Take the plastic case off from **EWS3**
- Connect **EWS3** to the socket of the cable for reading/writing **EWS3**
- Reassure that in **EWS** Editor programme type of **EWS** is switched to **Auto**
- In **EWS** Editor programme select **[Read EWS]** function

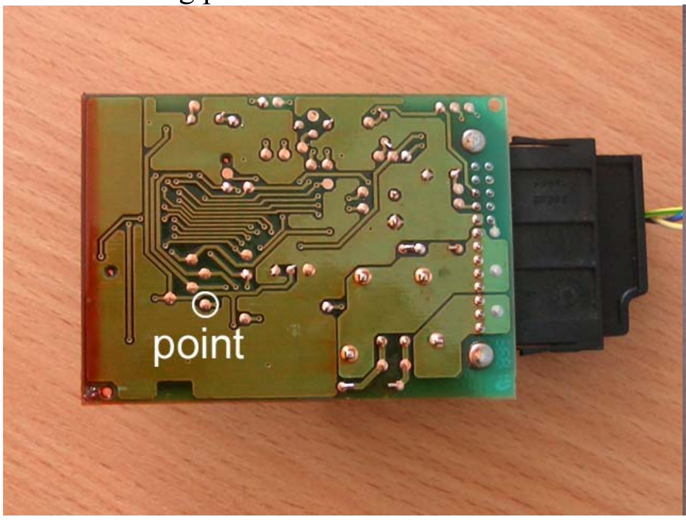


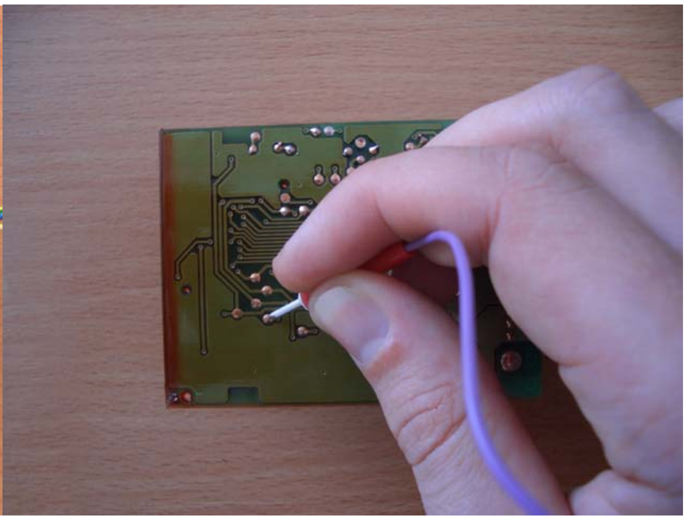
EWS: Auto

Reading EWS...

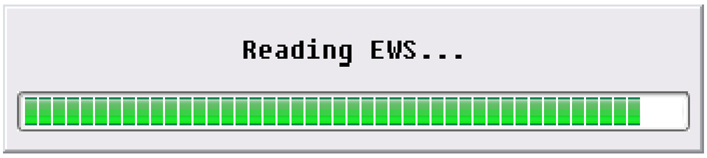
Device connected. Serial number: [redacted]. Firmware version 01

- Programme tries to read contents of **EWS3** four times, meantime you must touch test point on the PCB (printed circuit board) of **EWS3** with probe (see picture below), hold it on the test point untill reading procedure starts.





- If the connection established successfully, progress bar appears:



Reading EWS...

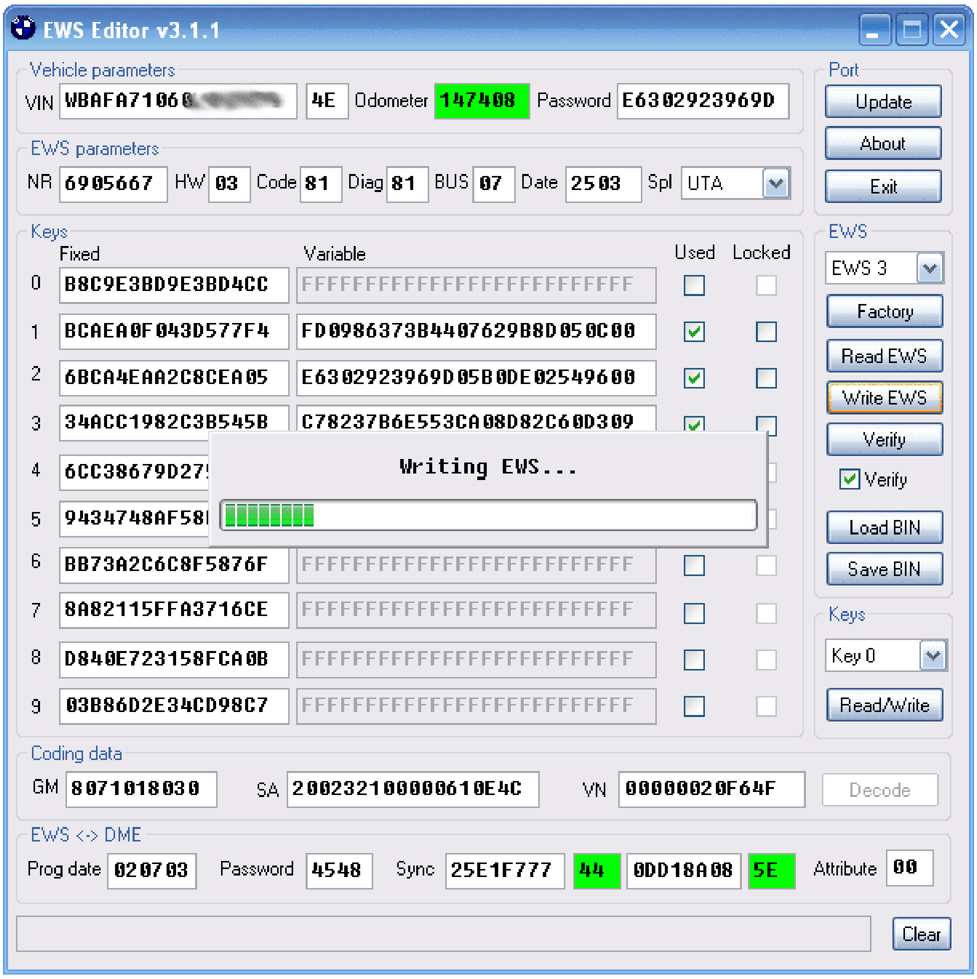
- Remove the probe off the PCB

WARNING!!!

- Selecting wrong test point you may damage or break **EWS3** unit! Be very attentive!
- PCB of **EWS3** unit is covered with non-conductive compound, it may lead to poor contact of probe with test point on the PCB of **EWS3** unit, and you will be unable to connect to **EWS3** unit.

8. #Writing EWS

- Connect **EWS3** to the socket of the cable for reading/writing **EWS3**
- Perform all the necessary changes
- Select **[Save EWS]** function in **EWS Editor** programme



Vehicle parameters

VIN WBAFA7106[redacted] 4E Odometer 147408 Password E63029239 69D

EWS parameters

NR 6905667 HW 03 Code 81 Diag 81 BUS 07 Date 2503 Spl UTA

EWS 3

☑ Verify

Key 0

Keys

	Fixed	Variable	Used	Locked
0	B8C9E3BD9E3BD4CC	FFFFFFFFFFFFFFFFFFFFFFFFFF	□	□
1	BCAEA0F043D577F4	FD0986373B4407629B8D050C00	☑	□
2	6BCA4EAA2C8CEA05	E63029239 69D05B0DE02549600	☑	□
3	34ACC1982C3B545B	C78237B6E553CA08D82C60D309	☑	□
4	6CC38679D27			
5	9434748AF58			
6	BB73A2C6C8F5876F	FFFFFFFFFFFFFFFFFFFFFFFFFF	□	□
7	8A82115FFA3716CE	FFFFFFFFFFFFFFFFFFFFFFFFFF	□	□
8	D840E723158FCA0B	FFFFFFFFFFFFFFFFFFFFFFFFFF	□	□
9	03B86D2E34CD98C7	FFFFFFFFFFFFFFFFFFFFFFFFFF	□	□

Writing EWS...

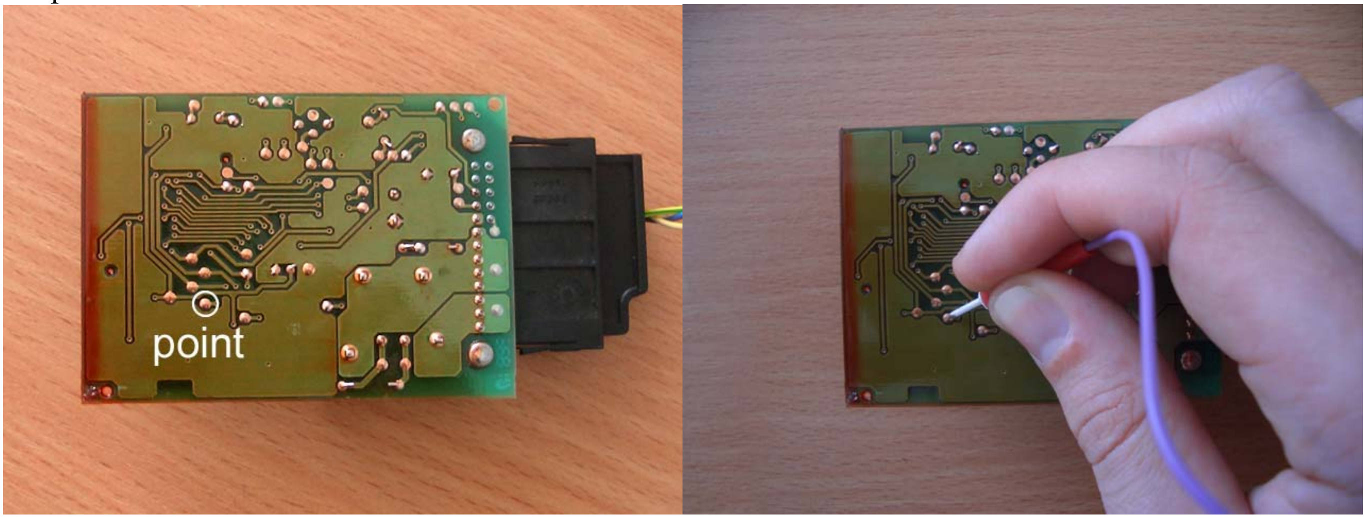
Coding data

GM 8071018030 SA 200232100000610E4C VN 00000020F64F

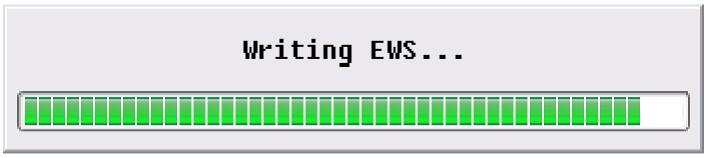
EWS <-> DME

Prog date 020703 Password 4548 Sync 25E1F777 44 0DD18A08 5E Attribute 00

- Programme tries to write new contents of **EWS3** four times, meantime you must touch test point on the PCB (printed circuit board) of **EWS3** with probe (see picture below), hold it on the test point until writing procedure starts



- If the connection established successfully, progress bar appears:



Writing EWS...

- Remove the probe off the PCB

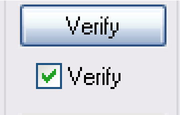
WARNING!!!

- Selecting wrong test point you may damage or break **EWS3** unit! Be very attentive!
- PCB of **EWS3** unit is covered with non-conductive compound, it may lead to poor contact of probe with test point on the PCB of **EWS3** unit, and you will be unable to write data to **EWS3** unit.

9. #Automatically verification of changes in EWS3 unit

After writing changes **EWS3** (**[Write EWS]** function) software will automatically proceed to **EWS3** reading, compare read data to current data (which are still in memory of the programme) and report the writing procedure summary.

- To enable/disable automatical verification of the **EWS3** check/uncheck in Verify field.



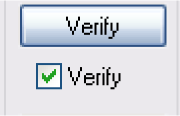
- Perform writing the changes procedure (refer to **[Write EWS]**)
- After completion of the procedure a notification **"Press OK to continue"** will appear
- After you click **[OK]** the reading procedure of **EWS3** unit starts (refer to **[Read EWS]**)

Verification summary:

- Message **"EWS data MATCH"** appears when written data corresponds read data
- Message **"EWS data MISMATCH"** appears when written data does not correspond read data, in that case repeat writing to **EWS3** unit procedure (refer to **[Write EWS]**)

10. #Manual verification of changes EWS3 unit

After writing modified data in **EWS3** unit (**[Write EWS] function**) you can press **[Verify]** button to read **EWS3** data, compare read data to current data (which are still in memory of the programme) and get the writing procedure summary.



☑ Verify

- Press **[Verify]**, message **“Press OK to continue”** appears
- Нажатие **[OK]** запускает процедуру чтения **EWS3** (см. функцию **[Read EWS]**)

Verification summary:

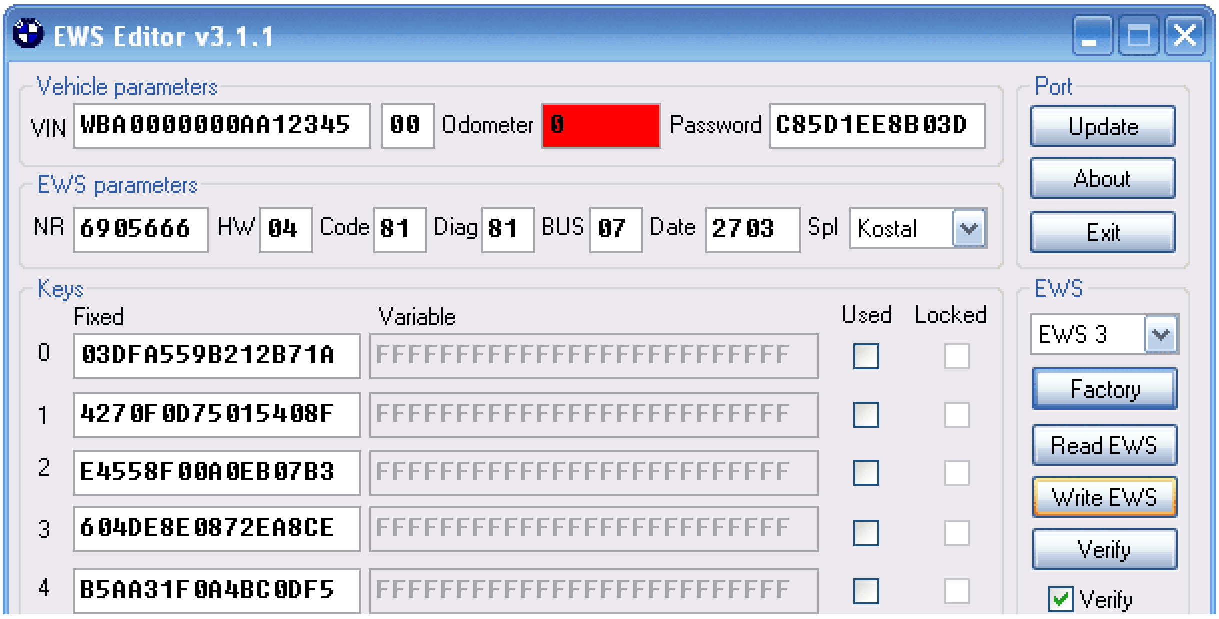
- Message **“EWS data MATCH”** appears when written data corresponds read data
- Message **“EWS data MISMATCH”** appears when written data does not correspond read data, in that case repeat writing to **EWS3** unit procedure (refer to **[Write EWS]**)

11. #EWS3 factory reset

This function is designed for data recovery of **EWS3** by means of loading factory values.

(FR) function purposes:

1. Data recovery after failing to read **EWS3** unit (mask set **D47J**)
2. Data recovery in defective **EWS3** unit
3. Data recovery after **EWS3** unit loss/theft [Yep, shit happens… ☹]



VIN WBA0000000AA12345 00 Odometer 0 Password C85D1EE8B03D

NR 6905666 HW 04 Code 81 Diag 81 BUS 07 Date 2703 Spl Kostal

EWS 3

	Fixed	Variable	Used	Locked
0	03DFA559B212B71A	FFFFFFFFFFFFFFFFFFFFFFFFFF	□	□
1	4270F0D75015408F	FFFFFFFFFFFFFFFFFFFFFFFFFF	□	□
2	E4558F00A0EB07B3	FFFFFFFFFFFFFFFFFFFFFFFFFF	□	□
3	604DE8E0872EA8CE	FFFFFFFFFFFFFFFFFFFFFFFFFF	□	□
4	B5AA31F0A4BC0DF5	FFFFFFFFFFFFFFFFFFFFFFFFFF	□	□

☑ Verify

- In **EWS** column select type of **EWS** unit - **EWS3**
- Function **[Factory]** becomes active, proceed by pressing it
- **“Reset to factory defaults?”** request appears
- Select **[YES]** – to reset to factory defaults **[NO]** – to cancel the operation
- Fill in the corresponding fields manually **(VIN number, mileage, coding, etc)** [2)]
- Store new data in **EWS3** unit(refer to **[Write EWS]**)

[2)] – Also you can encode necessary data using **EWS3** using dealer’s diagnosis (**GT-1** or **Modic-DIS**) or using **BMW Scaner**

12. #EWS Editor software fields description

Vehicle parameters firld contains:

- **VIN –** vehicle identification number and it's checksum
- **Odometer -** mileage, (in older **EWS3** versions, till hw:2 sw:5, milege is not counted in immobilizer and has fixed state equal 9xxxxx km). On later **EWS3** units (hw:3 sw: 6 and hw:3 sw:8) is counted and stored in key. For easier editing in **EWS Editor,** mileage in **EWS** unit and key are combined in one field. Red colored field indicates **EWS** unit mileage and key mileage mismatch. Enter the actual mileage or zero value to fix it. If the mileage was set to zero value, it will be restored from instrument cluster after the ignition is on.
- **Password** - unique access code of the key. If the **EWS** unit and key password mismatch is present, the key won't be accepted by anti-theft unit and the engine won't start!

EWS parameters field contains:

- **NR –** BMW part number
- **HW –** hardware/software version
- **Code/ Diag/BUS –** indexes
- **Data –** date of manufacturing
- **Spl –** manufacturer. Using **EWS Editor** you can work with **EWS** units of different manufacturers designed for **BMW** vehicles. They are listed below:

"Reinshagen", "Kostal", "Hella", "Siemens", "Eaton", "UTA", "Helbako", "Bosch", "Loewe", "VDO", "Valeo", "MBB", "Kammerer", "SWF", "Blaupunkt", "Philips", "Alpine", "Teves", "Elektromatik Suedafrika", "Becker", "Preh", "Alps", "Motorola", "Temic", "Webasto", "MotoMeter", "Delphi PHI", "DODUCO"

For **ROVER** vehicles:

"AMR", "HHF", "JFC", "MKC", "SCB", "SRB", "XQC", "XQD", "XQE", "XVD", "YAC", "YDB", "YFC", "YUB", "YWC", "YWQ", "EGQ", "YIB", "YIC", "YIE"

Keys field contains:

- **0-9** – key index number
- **Fixed** – fixed part of key code, always invariable
- **Variable** – variable part of the key code, it is changed every time ignition is on.
- **Used** – indicates key state

If the field is checked – the was used at least once, if unchecked – the key was not used.

- **Locked** – indicates key state
  If the field is checked – key is blocked and has no access to the vehicle, if not – the key has access and if the variable part of code is correct, this key can start the engine. [3)]

[3)] – refer to # **Recovering key synchronization.**

Coding data field contains:

- **GM/SA/VN –** coding data, data concerning vehicle's units and it's addresses. If the units data is incorrect or mismatch the complectation, those units won't work properly. Location of stickers placed in vehicle with coding data **GM/SA/VN** you can find in **BMW TIS**

EWS <-> DME field contains:

- **Prog date** – date of programming and installation of the unit on the vehicle
- **Password** – password of correspondence between **EWS3** unit and engine control unit (**DME/DDE**). Must coincide with **DME/DDE** password.
- **Sync** – variable part of code of **EWS** unit and engine control unit (**DME/DDE**) correspondence. Consists of two areas, four bytes each plus checksum. If the checksum is highlighted with red color – it is invalid.
- **Attribute** – status of **EWS**.

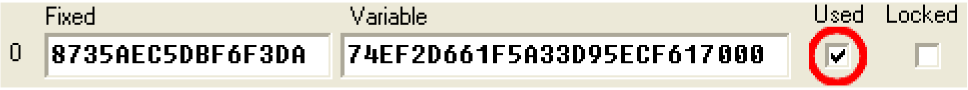
13. #Recovering key synchronization

Attempt to start BMW vehicle haVINg the battery discharged often lead to key synchronization loss, and as a result, starter does not react when you are trying to start the engine even with fully recharged battery. Vehicle diagnosis via **GT-1** or **Modic-DIS** can indicate the variable key code mismatch. Recover key synchronization and **EWS3** unit using dealer's diagnosis hardware **GT-1** or **Modic-DIS is impossible!** The only solution will be to order new key from dealer using vehicle's **VIN** number.

EWS Editor allows you to recover key and **EWS3** unit synchronization.

Recovering key and **EWS3** unit synchronization procedure:

- Read **EWS3** data using function **[Read EWS]**
- Save the dump of read **EWS3** unit into a file using the **[Save BIN]** function
- Read the key data using the function **[Read KEY]** and remember it's number [4)]
- Uncheck the "Used" field for this key



	Fixed	Variable	Used	Locked
0	8735AEC5DBF6F3DA	74EF2D661F5A33D95ECF617000	☑	□

- When you will be asked **[Mark key (X) as unused?]** answer YES – to proceed, or NO – to cancel the operation.
- Store data in **EWS3** using **[Save EWS]** function

[4)] – Factory anti-theft unit **EWS3** works with ten keys, purchasing the vehicle owner gets four keys – №0, №1, №2 и №3, other keys may be ordered from official dealer by **VIN** number.
(X) – number of the key.

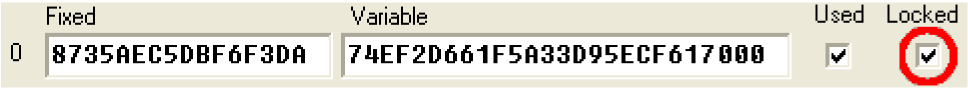
14. #Key blocking and unblocking

After a key loss you deny access for the lost key using dealer's equipment (**GT-1** or **Modic-DIS**). But if the key will be found you won't be able to reauthorize the key using dealer's equipment (**GT-1** or **Modic-DIS**). The only solution will be to order new key from official dealer by **VIN** number.

The **EWS** Editor system, allows granting and denying access to the vehicle for the key.

Reauthorization of the lost key procedure:

- Read **EWS3** unit using **[Read EWS]** function
- Save the dump of read **EWS3** unit into a file using the **[Save BIN]** function
- Read the key data using the function **[Read KEY]** and remember it's number [5)]
- Uncheck the "Locked" field – to grant access for this key, or check that field to deny access.



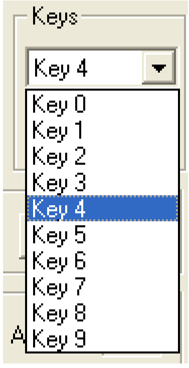
	Fixed	Variable	Used	Locked
0	8735AEC5DBF6F3DA	74EF2D661F5A33D95ECF617000	☑	☑

- While activating the "**Locked" function** you will be asked **[Mark key (X) as locked?]** answer YES – to block access to the key, or NO – to cancel the operation.
- Запишите изменения в **EWS3** используя функцию **[Save EWS]**

[5)] – Factory anti-theft unit **EWS3** works with ten keys, purchasing the vehicle owner gets four keys – №0, №1, №2 и №3, other keys may be ordered from official dealer by **VIN** number.
(X) – number of the key.

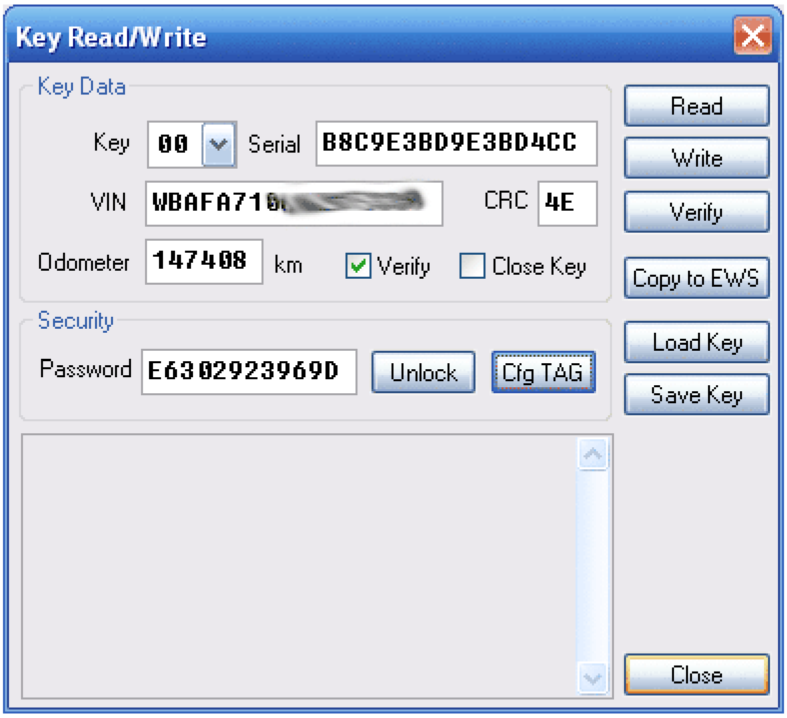
15. #Adding key

- Read **EWS3** (function **[Read EWS])** or open the file using **[Load BIN]** function
- In the “Keys” field select the number of key you want to add.



- In the key’s field select **[Read/Write]** to proceed to the key operations subprogramme, it will fill all the necessary fields automatically

16. #Subprogram fields assignment


Key Read/Write

Key Data

Key 00 Serial B8C9E3BD9E3BD4CC

VIN WBAFA710[redacted] CRC 4E

Odometer 147408 km ☑ Verify □ Close Key

Security

Password E6302923969D

Key Data field contains:

- **Number** – key number
- **Serial** – fixed part of key code
- **VIN – VIN** number and it’s checksum - **CRC**
- **Odometer** - mileage
- **Verify** check field – key verification after storing
- **Close Key** check field – closing key after storing

Security field contains:

- **Password** – password for key enabling/disabling
- **Unlock** button – this function allows you to unlock key and if the password is known make it valid
- **Cfg TAG** button – enables you to prepare and configure brand new transponder **PCF7930** or **PCF7930** to work with **EWS** unit
- **[Copy to EWS]** button – copy read key to **EWS** to the field which corresponds the number of read key

17. #Key reading

- Insert the key to the system
- Run the **EWS Editor**
- Select **[Read/Write]** in “**Keys”** field
- **Keys Read/Write** subprogramme opens, then select **[Read]**
- System will perform key reading and display status:
  - NO KEY – key has not been read
  - OK – key is red correctly
  - ERROR – error in key reading
- You can save read data from the key into a file

The programme creates a log-file **KEYLOG.TXT** and saves in it the list and sequence of all actions done:

```
05/31/05 21:33:26 -- Reading key
  Status: OK
```

18. #Key writing

- Insert the key to the system
- Run the **EWS Editor**
- Select **[Read/Write]** in keys “**Keys”** field
- **Keys Read/Write** subprogramme opens, fill all the necessary fields and press **[Write]**
- System will perform key storing and display status:

The programme creates a log-file **KEYLOG.TXT** and saves in it the list and sequence of all actions done:

```
07/08/05 13:29:28 -- Writing key
  Number: 00
  Serial: 0D9B2767AB5545C4
  VIN: WBADD610X0BR18330 [57]
  Odometer: 305011
  Password: 000000000000
  Status: OK
```

19. #Configuring PCF7930/35 transponders to work with EWS

- Insert transponder to the system
- Press the **[Cfg TAG]** button
- You’ll be asked **«Configure?»** answer YES to confirm or NO to cancel the operation

20. #EWS Recovering

- Create a new dump, refer to **#EWS3 Factory Reset (FR)**
- Prepare and store new keys, refer to. **#Storing the key**
- Read the synchronization password from engine control unit DME/DDE and enter it to the **EWS** <-> **DME** Password field
- **EWS** and **DME** unit on the vehicle, applying dealer’s or any other equipment

21. #Appendix

DME – engine control unit for petrol engine
DDE – engine control unit for diesel engine
EWS – factory anti-theft system

All trademarks are property of their respective owners