A·B·R·I·T·E·S
automotive solutions

ABRITES PROGRAMMER

User manual
version 1.0

Important notes

The Abrites software and hardware products are developed, designed and manufactured by Abrites Ltd. During the production process we comply to all safety and quality regulations and standards, aiming at highest production quality. The Abrites hardware and software products are designed to build a coherent ecosystem, which effectively solves a wide range of vehicle-related tasks, such as:

- Diagnostic scanning;
- Key programming;
- Module replacement,
- ECU programming;
- Configuration and coding.

Warranty

You, as a purchaser of Abrites hardware products, are entitled of a two-year warranty. If the hardware product you have purchased has been properly connected, and used according to its respective instructions, it should function correctly. In case the product does not function as expected, you are able to claim warranty within the stated terms. Abrites Ltd. is entitled to require evidence of the defect or malfunction, upon which the decision to repair or substitute the product shall be made.

There are certain conditions, upon which the warranty cannot be applied. The warranty shall not apply to damages and defects caused by natural disaster, misuse, improper use, unusual use, negligence, failure to observe the instructions for use issued by Abrites, modifications of the device, repair works performed by unauthorized persons. For example, when the damage of the hardware has occurred due to incompatible electricity supply, mechanical or water damage, as well as fire, flood or thunder storm, the warranty does not apply.

Each warranty claim is inspected individually by our team and the decision is based upon thorough case consideration.

Read the full hardware warranty terms on our website.

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- Warranties for Abrites products and services are set forth in the express written warranty statements accompanying the product. Nothing herein should be construed as constituting any additional warranty.
- Abrites assumes no responsibility for any damage resulting from the use, misuse, or negligent use of the hardware or any software application.

Safety information

The Abrites products are to be used by trained and experienced users in diagnostics and reprogramming of vehicles and equipment. The user is assumed to have a good understanding of vehicle electronic systems, as well as potential hazards while working around vehicles. There are numerous safety situations that cannot be foreseen, thus we recommend that the user read and follow all safety messages in the available manual, on all equipment they use, including vehicle manuals, as well as internal shop documents and operating procedures.

Some important points:
Block all wheels of the vehicle when testing. Be cautious when working around electricity.

- Do not ignore the risk of shock from vehicle and building-level voltages.
- Do not smoke, or allow sparks/flame near any part of the vehicle fuel system or batteries.
- Always work in an adequately ventilated area, vehicle exhaust fumes should be directed towards the exit of the shop.
- Do not use this product where fuel, fuel vapours, or other combustibles could ignite.

In case any technical difficulties occur, please contact the
Abrites Support Team by email at support@abrites.com.

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1. Introduction

The Abrites programmer is used for reading, writing and erasing different types of memories such as (including BDM reading/writing of EDC16/MED9.X ECUs):

- SPI EEPROM
- I2C EEPROM
- MW EEPROM (Micro Wire)
- MPC 555/563/565
- MPC 5XX EXTERNAL FLASH
- MPC 5XX EXTERNAL EEPROM
- RENESAS V850 MCU
- PCF
- MB NEC KEY(Mercedes-Benz)
- EWS(BMW)

2. Getting Started

2.1 System requirements

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

2.2 Supported devices

- SPI EEPROM

ST M35080VP / ST M35080V6
ST D080D0WQ
ST D160D0WQ
ST M95010
ST M95020
ST M95040
ST M95080
ST M95160
ST M95320
ST M95640
ST M95128
ST M95256
ST M95P08

- I2C EEPROM

24C01
24C02
24C08
24C16
24C32
24C64
24C128
24C256
24C512
24C1024

- MW EEPROM

93C46 8bit / 16bit
93C56 8bit / 16 bit
93C66 8bit / 16 bit
93C76 8bit / 16 bit
93C86 8bit / 16 bit

- MPC

MPC555/556 Flash
MPC555/556 CMF A/B Shadow Rows
MPC533/534/564 CMF Flash
MPC533/534/564 Shadow Row
MPC535/536/565/566 CMF Flash
MPC535/536/565/566 CMF A/B Shadow Rows
MPC5XX External Flash (58BW016XX, AMDXX, Intel28XX, Micron 58BW016XX, Numonyx 58BW016XX, Spansion 29CXX, ST 58BW016XX)
MPC5XX External EEPROM (ST 95640, ST 95320, ST 95160, ST 95080)

- Renesas V850 MCU

UPD70FXXXX PFlash
UPC70F35XX DFlash
DFlash 32KB V850ES
Renault BCM (X95)
Renault HandsFree (X98)

- PCF

AUDI 8T0959754XX, 4G0959754XX, 4H0959754XX 315 / 868 / 433 MHz
BMW F HUF5XXX, 5WK496XX 868 / 315 / 433 MHz
BMW E 5WK49XXX Remote / Keyless 868 / 315 / 433 MHz
PORSCHE 7PP969753XX 433 / 434 / 315 MHz
VOLVO 5WK4926X 433 / 900 MHz
RENAULT AES, AES KEYLESS, DACIA AES, FLUENCE, MEGANE 3
OPEL ASTRA H, ZAFIRA B, ASTRA J/INSIGNIA
RANGE ROVER 5E0U40247 434MHz
MITSUBISHI G8D 644M
PSA 21676652, E33CI002, E33CI009, E33CI01B
CHRYSLER JEEP DODGE KOBOTO04A
BUICK 13500224(13584825),13500225(13584825) 315MHz
CHEVROLET 135XXXXX
GM KEYLESS 433MHz 5BTN
CADILLAC NBG009768T 315MHZ 5BTN KEYLESS

- MB NEC KEY
- EWS

0D46J
2D47J

3. Hardware

ZN030 - ABPROG set

ZN031 - ABPROGEEPROM/BCM adapter

ZN032 – ABPROG NEC adapter with socket

ZN033 – ABPROG NEC adapter

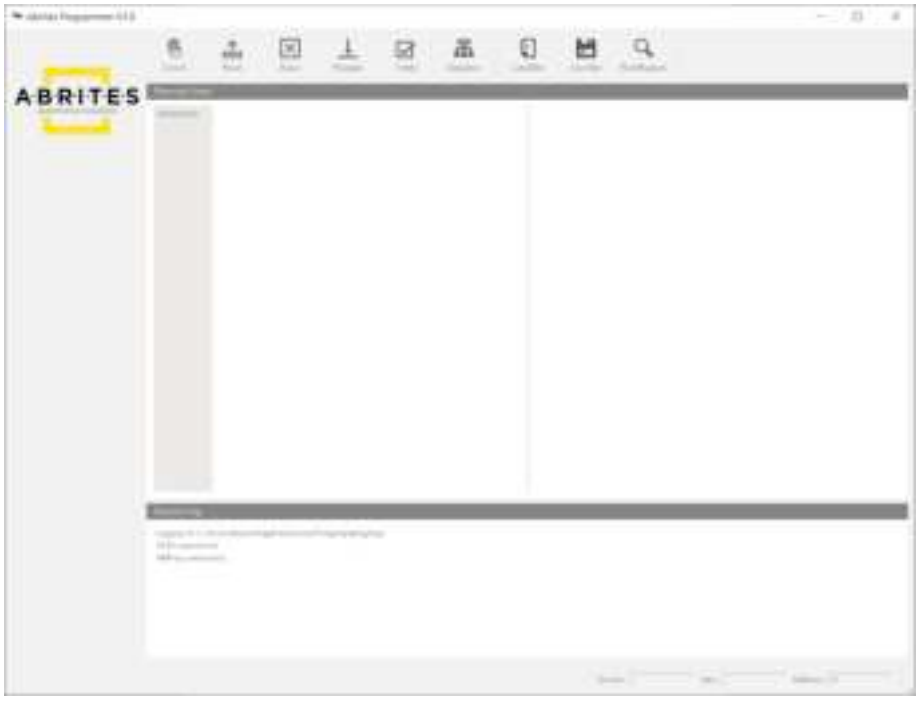
ZN034 - ABPROG flat cable

ZN073 – BDM Programmer

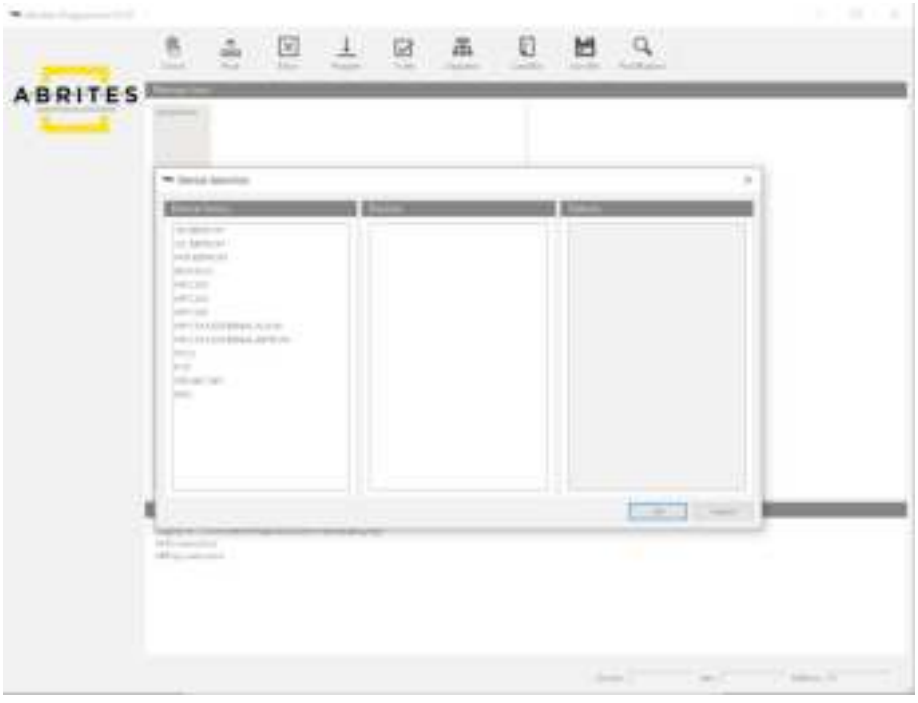
4. Software

When the programmer(ZN045) is connected to the AVDI you can start the software by selecting ABProg > Upgraded:

This is the main screen of the software:



The “Select” option will open the list with all supported devices:



The **“Read”** option will read the memory of the selected device.

The **“Erase”** option will erase the memory of the selected device.

The **“Program”** option will program the selected device using the data from the hex editor.

The **“Verify”** option will compare the memory of the selected device with the contents of the hex editor.

The **“Diagrams”** option will show a wiring connection diagram(if available) for the selected device.

The **“Load”** option allows the user to load a binary file in the hex editor.

The **“Save”** option allows the user to save to contents of the hex editor to a binary file.

The **“Find/Replace”** option will search for hex/UTF-8 pattern in the contents of the hex editor.

5. BDM ECU Programmer

This function is intended for BDM reading of EDC16XX/MED9.XX ECU memory. In order to read the ECU memory in BDM you will need ZN045 ABPROG programmer, ZN073 BDM adapter and an external power supply for working on bench.

- Warning: Please adhere to the provided sequence of operations. Failure to do so may lead to unintended consequences, the least of which is a bricked ECU.
- Note: The BDM Programmer requires the ECU to be removed from the vehicle, as the programming needs to take place on a workbench.
- Tools needed: 12/24V power supply, soldering iron, double-row 1.27mm pitch PCB headers

Please ensure you follow the steps below when connecting or disconnecting the ECU:
1. Ensure both AVDI and the ECU are powered off.
2. Remove ECU from vehicle and open it on workbench.
3. Solder 14-pin header on BDM test points, as indicated in example picture (picture coming soon)

4. Connect the BDM adapter to the ECU using a ribbon cable. Warning: incorrect wiring may cause permanent damage to the adapter and/or the ECU.
5. Connect the BDM adapter(ZN073) to ABProg(ZN045).
6. Connect the ABProg(ZN045) to AVDI.
7. Connect AVDI to PC.
8. Power on AVDI.
Ensure orange LED on BDM adapter is ON
9. Power on the ECU – it should immediately enter Debug mode.
- Ensure green LED on BDM adapter is ON

10. Launch the Abrites programming software
11. Select the desired ECU memory from the software menu
12. Select desired operation (read/erase/program). Note: If you want to program the ECU, the selected memory must first be erased
13. When finished, exit the user application
14. Power off the ECU
15. Power off AVDI and disconnect BDM adapter from target ECU

IMPORTANT NOTE: Do not write anything in the first 8 bytes of the MPC processor shadow rows, unless you are completely certain in what you do. The shadow rows contain censoring information, and fiddling with it may lead to locking out the processor without possibility for unlocking.

ABPROG to BDM ADAPTER PINOUT

Connector A - Standard BDM (10 Pins)	
Pin 1	VFLS 0
Pin 2	Not Connected
Pin 3	GND
Pin 4	DSCK
Pin 5	GND
Pin 6	VFLS 1
Pin 7	HRESET
Pin 8	DSDI
Pin 9	VCC
Pin 10	DSDO

Connector B - BOSCH EDC BDM (14 Pins)	
Pin 1	HRESET
Pin 2	Not Connected
Pin 3	DSCK
Pin 4	DSDI
Pin 5	Not Connected
Pin 6	VCC
Pin 7	Not Connected
Pin 8	Not Connected
Pin 9	VFLS 1
Pin 10	VFLS 0
Pin 11	DSDO
Pin 12	GND
Pin 13	Not Connected
Pin 14	Not Connected