

Abritus 72 Ltd

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SMART Key Teach-In device User Manual

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1. Supported features

This key-learning device supports all SMART vehicles. All you need is a prepared key for SMART and for some models you must use a prepared by Abritus72 transponder.

1.1. “Key Synchronization over K-Line”

Automatically establishes a diagnostic session with the SAM unit and performs synchronization of all available keys over K-Line.

1.2. “Key Synchronization over CAN”

Automatically establishes a diagnostic session with the SAM unit and performs synchronization of all available keys over CAN.

1.3. “Start the car without a working transponder”

This mode is useful when you do not have a working transponder and you wish to move the car. The car can only be started once when this mode is activated.

2. Using the device

The device is easy to use and requires minimum user intervention. Any information, that is required from the user before starting to use the device can be provided by using the 8 switches, placed on the device. The user can set the operation mode of the device by setting the switches in different positions. For each functionality a specific combination of the positions of the switches is required before starting to use the device. Any feedback from the device to the user is provided, by using the green, red and yellow LEDs placed on the device. More information can be found below in this document.



Please, read the information that follows before using the device!

3. Using the features

The 2 key synchronization features, can be activated individually using switches 1 and 2 placed on the device.

Activated feature	Switch 1 position	Switch 2 position	Switch 3 position
“Key learning over K-Line”	ON	OFF	OFF
“Key learning over CAN”	OFF	ON	OFF
“Start the car without a working transponder”	OFF	OFF	ON

3.1. “Key learning over K-Line”

3.1.1. Setup

This mode should be used for SMART vehicles, produced up to year 2005.

For using the device's “Key learning over K-Line” feature, switch number 1 should be placed at position ON. The rest of the switches are not used in this case.

3.1.2. Usage

To start the key synchronization procedure you must first have prepared an appropriate key. You must insert this key into the Ignition Switch and turn to position Ignition ON.

Then, put switch 1 to position ON and plug the key-learning device into the OBDII port of the vehicle. By doing this, the device is activated and starts doing its job (see “Indications for the user” chapter below). Observe the indications – if the LEDs on the device do not start blinking, you must check the setup and repeat the procedure.

3.1.3. Key Synchronization

After the device is plugged in the OBDII port, it performs the following functions:

- Automatically establishes a diagnostic session with the SAM control unit and puts the SAM control device in a key-synchronization mode.
- At some point the yellow and green LEDs on the key-learning device will go OFF. At this point the Key LED on the dashboard should start blinking fast. You need to switch Ignition OFF at this moment.
- If your key has more than 1 buttons - press the 'CLOSE' button twice within 30 seconds. If the key is successfully registered, the Key led in the dashboard must go off for about 2 seconds and after that will continue blinking again.

If your key has only 1 button - press it twice within 30 seconds.

ATTENTION: You must synchronize all the keys you have, otherwise you cannot start your car with non-synchronized keys!

- After the 30 seconds have elapsed – the green and yellow LEDs on the key learning device will start blinking synchronously (for 2 seconds they will both be ON and for 2 seconds they will both be OFF). This means that the Key-Learning procedure has finished successfully.
- Now, you must confirm that all keys are synchronized by trying to start the vehicle's engine with each one of them. If for some reason one or more of the keys are not correctly synchronized – you can repeat the procedure.

3.1.4. Indications to the user

Any feedback from the device to the user is given by the red, green and yellow LEDs placed on the device.

The red LED should be constantly on, indicating that the device is powered. The green and yellow lamps provide different information:

- asynchronous blinking of both the green and the yellow LEDs indicates data flow (incoming and outgoing) between the key-learning device and the SAM unit in the vehicle.
- if after there has been some communication - the yellow and green LEDs go OFF – this means that the user should switch the Ignition OFF and start synchronizing the keys.
- continuous blinking only of the green LED indicates that there is no data flow in the moment, but the device is still working.
- continuous synchronous blinking of the the green and yellow LEDs (2 seconds ON and 2 seconds OFF) indicates that the procedure has finished successfully.

3.2. “Key learning over CAN”

3.2.1. Setup

This mode should be used for SMART vehicles, produced after the year 2005. For using the device's “Key learning over CAN” feature, switch number 2 should be placed at position ON. Please, note that if you only want to synchronize 1 key – you don't need to use any of the other switches. However, if you would like to synchronize more than 1 keys in this mode, you must also use switches 5 and 6. The table below shows how to set-up switches 5 and 6, in case you want to register more than 1 keys:

SWITCH-5	SWITCH-6	Number of Keys
OFF	OFF	1
ON	OFF	2
OFF	ON	3
ON	ON	4

3.2.2. Usage

To start the key synchronization procedure you must first have prepared an appropriate key as well as a transponder. You must use a prepared by Abritus72

transponder. You must insert this key into the Ignition Switch and turn to position Ignition ON.

Then, put switch 2 to position ON and plug the device into the OBDII port of the vehicle. By doing this, the device is activated and starts doing its job (see "Indications for the user" chapter below). Observe the indications – if the LEDs on the device do not start blinking, you must check the setup and repeat the procedure.

3.2.3. Key Synchronization

After the device is plugged into the OBDII port, it performs the following tasks:

- Automatically establishes a diagnostic session with the SAM control unit over CAN and puts the SAM control device in a key-synchronization mode.
- Within only a few seconds the yellow and green LEDs on the device will go OFF. At this moment you must switch the Ignition OFF and then ON again.

ATTENTION: You must switch the Ignition ON again within 20 seconds, otherwise the teach-in process will be aborted.

- After that if you want to learn further keys, you must exchange the key in the Ignition Switch and again wait for the yellow and green LEDs to go OFF. The ignition must be switched ON again in no more than 20 seconds, otherwise the teach-in process will be aborted.

- It is very important to carefully observe the indications, that the green and yellow lamps provide to you!

Any time when the yellow and green LEDs are OFF, you must switch the Ignition OFF!

Any time when the yellow and green LEDs are ON, you must switch the Ignition ON!

- Confirm that all keys are synchronized by trying to start the vehicle's engine with each one of them.

3.2.4. Indications for the user

Any feedback from the device to the user is given by the red, green and yellow LEDs placed on the device.

The red LED should be constantly on, indicating that the device is powered. The green and yellow lamps provide different information:

- asynchronous blinking of both the green and the yellow lamps indicates data flow (incoming and outgoing) between the key learning device and the SAM control unit in the vehicle.

- if after some communication has been going on the yellow and green LED both go OFF – this means that you must turn Ignition OFF.

- if after some communication has been going on the yellow and green LED both go ON – this means that you must turn Ignition ON.

- continuous synchronous blinking of the the green and yellow LEDs (2 seconds ON and 2 seconds OFF) indicates that the procedure has finished successfully.

3.3. “Starting the car without a working transponder”

3.1.1. Setup

This mode should be used for SMART vehicles, produced after the year 2005.

For using the device's “Starting the car without a working transponder” feature, switch number 3 should be placed at position ON. The rest of the switches are not used in this case.

3.1.2. Usage

To start the car without a working transponder you must first have prepared an appropriate key. You must insert this key into the Ignition Switch and turn to position Ignition ON.

Then, put switch 3 to position ON and plug the key-learning device into the OBDII port of the vehicle. By doing this, the device is activated and starts doing it's job. Observe the indications – if the LEDs on the device do not start blinking, you must check the setup and repeat the procedure. The procedure takes about 5 seconds and then the car can be started. Continuous synchronous blinking of the the green and yellow LEDs (2 seconds ON and 2 seconds OFF) indicates that the procedure has finished successfully.