

IMMO

emulator for

Hyundai, KIA

hitag2 based systems

Hardware description:

Designed to replace original key + amplifier + coil. Suitable for all KIA and Hyundai immo systems where hitag2 compatible keys are used (PCF7936). Common problems with these cars: broken amplifier, broken coil or faults in wiring between amplifier and power supply or ECU. Of course, there must be **valid key data** stored into emulator to work properly and allow to start a car..

Two boot (startup) modes possible, depends on jumper settings (see picture, marked with arrow) - shorted or not:

CONFIG mode:

jumper **open**, at power-up emulator loads default configuration (default ID and password, password mode, not locked). Although, data previously stored into EEPROM is not erased until new data arrives.

LED:

- after startup: **blinks fast** informing that default configuration is loaded,
- after successful write of new data into EEPROM: **blinks slow**
- after successful authorization: goes permanently **on**.

NORMAL mode:

jumper **shorted**, at power-up emulator loads data previously stored into EEPROM.

LED:

- after startup: LED is **off**,
- after successful write of new data into EEPROM (if configuration allows that!): **blinks slow**
- after successful authorization: goes permanently **on**.
- in case if authorization fails: **blinks fast** (occurs if KEY ID match, but wrong SK/PIN used).

Operation:



Emulator works according to data loaded at startup, like any hitag2 based transponder. Write is possible only if current configuration (page3) allows that (not locked, password mode). If you write transponder data and set lock bits, you must reboot emulator to rewrite it with new data even if it is already in CONFIG MODE.

To make configuration any suitable K-line adapter is necessary. You must connect power supply to both – emulator and K-line adapter and connect k-line and emulator line both together. Choose right COM port number.

Allowed COM port numbers are from 1 to 4, COM4 is set by default.

1. How to proceed - basic methods:

Option 1: read ECU dump, find any valid KEY ID and ECU PIN code, store them both into emulator. Then short jumper. Emulator is ready to start car now.

Option 2: obtain ECU PIN code from dealer network, attach emulator in CONFIG MODE, then use key align procedure via diagnostic tool. After successful write place solder joint to short jumper.

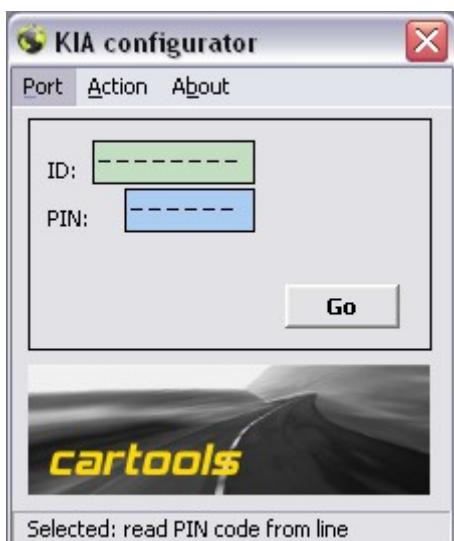
Option 3: obtain ECU PIN code from dealer network, prepare emulator (write blank transponder data into it), place solder joint. Install emulator into car. Then use key align procedure via diagnostic tool.



2. Special case - if valid key exists or KEY ID is already known:

- you can use TANGO programmer to find PIN. It can take up to 44 hours... :)
- you can use PINreader from configurator utility (at worst case it takes about 5 seconds to decode PIN).

If amplifier is in working order and at least one key available it is possible to get PIN code from line. Just attach K-line adapter to line, press "Go" and turn on ignition. In case of successful authorization you will get KEY ID and PIN code.



If amplifier is broken (it's a common problem!) you can proceed as follows:

- read KEY ID using any HITAG-2 compatible transponder programmer,
- attach emulator and k-line adapter to ECU. Emulator must be in CONFIG MODE.
- prepare emulator: store KEY ID. At this step only KEY ID is important - ECU must recognize "valid key ID".
- launch PINreader, press "Go", turn IGN ON, observe what happens. If everything is ok, PIN is calculated. Note that authorization fails here.
- rewrite emulator - store KEY ID once again and detected PIN. Note that you must reboot emulator (power off, power on) before storing new data!
- place solder joint to short jumper. Emulator is ready to start car.

