Omega – NATS-5 (v2.1)

This module for Omega programmer will work with the following Nissan NATS-5 and STEP5/5.6 immobilizer systems, built around TMS and ST processors:

5WK4 8041 AG with ST processor;
5WK4 8042 AG with ST processor;
5WK4 8042 AR with ST processor;
5WK4 8643 AG with TMS processors;
5WK4 8643 BG with TMS processors;
5WK4 8644 with TMS processors;
5WK4 8644 with TMS processors;
5WK4 8644 CR with TMS processors.

The module WILL NOT work with 5WK4 8645AG immobilizer system with TMS processor, as this immobilizer is a hybrid version using a different data exchange protocol.

To get this module to work, Omega-MTRK configuration file must be modified as follows:

```
GROUP=AUTOMOTIVE
CHIP=NATS-5 (TMS),256,nats5.hpx  ; immobilizers with TMS processors
AREA=EEPROM,256,1F00H
AREA=ROM,8K,6000H,w
BAUDB=10400
BAUDC=10400
LOADER=OFF

CHIP=NATS-5 (ST),256,nats5.hpx  ; immobilizers with ST processors
AREA=EEPROM,256,0C00H
AREA=ROM,16640,BF00H,w
BAUDB=10400
BAUDC=10400
LOADER=OFF
```
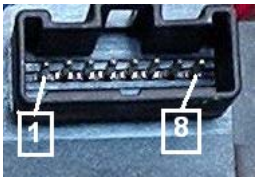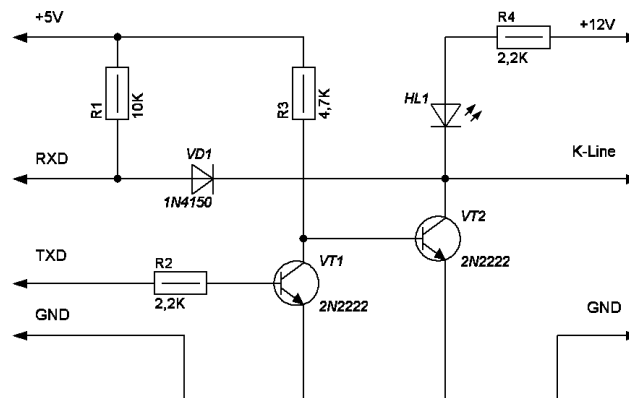
Immobilizer pin out:

1 – K-Line;
4 – GND;
6 – Indication LED;
7 – +12V (Ign);
8 – +12V (Batt).

To connect to the system, no interference with immobilizer circuits is needed. Data exchange is provided through the K-line interface adapter. The given diagram can be used as such an interface, which then has to be connected to the MTRK adapter or directly to the Omega base block.

The diagram of a suggested adapter with the component layout:
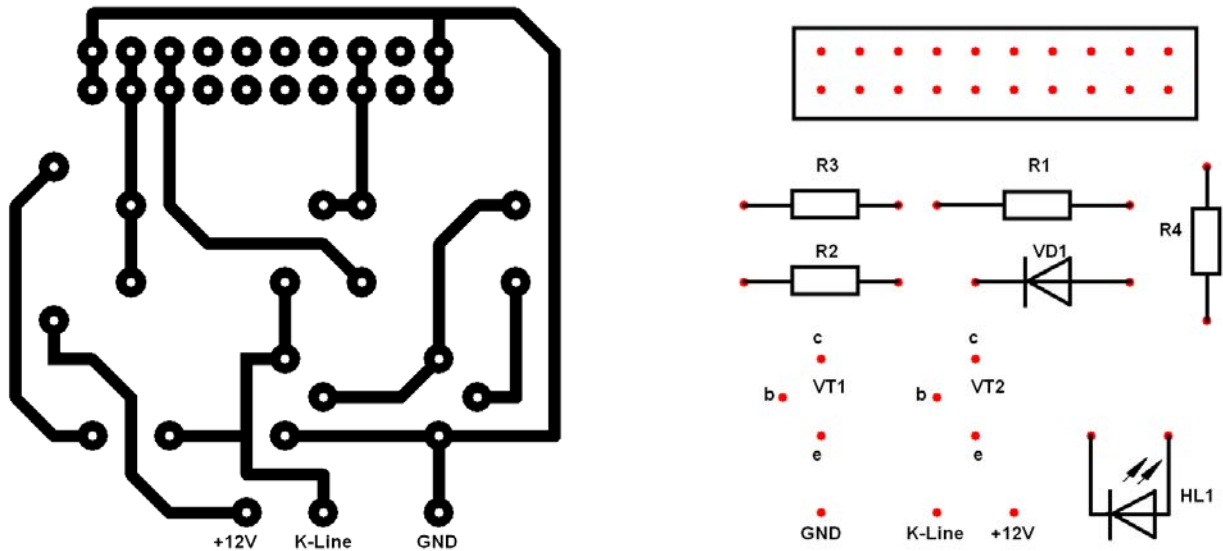
Overall view of the completed adapter:
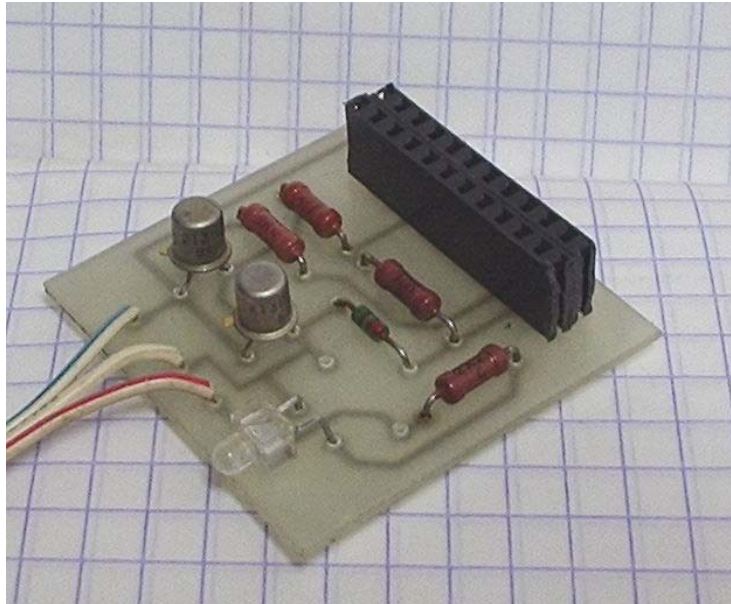
This device will provide a full access (read and write) to the EEPROM of the processor and will read RAM, ROM, Registers as described in Omega configuration file. Additionally there is a possibility to erase and automatically add new keys.

Reading, writing and modification of the EEPROM is done in a usual way.
It's strongly suggested to begin the work by reading and saving an EEPROM dump. Only after that, continue with your work as needed. The EEPROM dump contains synchronization code with the engine ECU and if its content is damaged, immobilizer will not unblock the ECU.

Review of the module additional features.

"Immo Version" – will provide immobilizer software version. The answer will be "NII4B6" for the immobilizer with a TMS processor, or "NII511" for the one with ST processor.

"Read Login" – will read four digit system login code. To get a proper code, Omega should be set to read processor EEPROM area.

"Get Key Status" – determines the status of a key, which is found in an immobilizer antenna coil. To properly use this function, cycle the ignition switch OFF and back ON, then click <OK>. There are three possible key states:

- Not key into immobilizer coil (there is no key in the antenna coil);
- Strange key (unknown key, not registered in a system);
- Key already learned into system (known key, registered and recognized by a system).

"Add Key" – registers new keys to the system (maximum of five). This function should be started after the new key is placed in an immobilizer antenna coil. To properly use this function, ignition switch must be cycled to OFF and back ON as requested by program and only then click <OK>. If more then one key has to be registered, place the next key into the antenna coil and cycle the ignition as program requests. If there are no more keys to register, select <Cancel>. At the end of the new key registering procedure the program will request to cycle the ignition switch once again.

"Delete All Key" – will delete all the key information from the EEPROM. If some of the keys previously registered in the system need to be reused, "Add Key" procedure must be executed after erasing all the key information from the EEPROM.