

BaseZ5R v1.1.0: User manual

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Introduction

Main features

The software BASEZ5R allows the management of the following keys: TOUCH MEMORY (DS1990A e DS1996L), BADGE of different types and REMOTE CONTROLS with frequency of 433 MHZ on the Z-5R (art. 0001) or Z-5R/5000 (art. 0002) controllers.

The program allows you to perform the following actions:

- Read the key list from the controller
- Write the key list to the controller
- Clear the controller's memory
- Change the door opening time on the controller
- Prepare a DS1996L memory key to read the key list from the controller
- Read the key list from the DS1996L
- Write the key list to the DS1996L

System Requirements

Supported adapter models:

- Z-2 (mod. E HTZ RF) / Z-2 EHR
- Z-1 (mod. N Z) / Z-2 Base

Supported reader models:

- Z-2 (mod. RD_ALL) / Z-2 USB
- Z-2 (mod. MF) / Z-2 USB MF
- Z-2 (mod. MF-I)
- Z-2 (mod. MF CCID)
- Z-2 (mod. E HTZ RF) / Z-2 EHR
- Z-2 (mod. E HT Hotel) / Z-2 RF-1996
- Z-1 (mod. N Z) / Z-2 Base
- Matrix-III (mod. RD_All)
- Matrix-III (mod. MF K Net) / Matrix-III Net
- Matrix-V (mod. E S RF) / Matrix-V
- Matrix-VI (mod. NFC K Net)

Firmware for adapters and readers: factory versions only.

Setting up USB readers

Readers and converters with FTDI chip (Z-2 (mod. RD_ALL), Z-2 (mod. MF), Z-2 (mod. E HTZ RF), Z-2

(мод. E HT Hotel), Z-397, Z-397 Guard) must have default VID/PID for FTDI (VID 0x403, PID 0x6001) and must have the description string "Manufacturer" equal to "FTDI" (You can use "ILogic" or "IL" if supported by the driver). These parameters can be changed using the utility https://ftdichip.com/utilities/#ft_prog [FT_Prog]:

- In Windows OS, download and install the FT_Prog program
- Connect the device. To avoid errors, disconnect the “extra” devices with the FTDI chip (if any)
- Install the drivers that came with it or download them from the website. <https://ironlogic.ru>. The instructions for installing the drivers are in the driver archive file
- Run FT_Prog. In the "Devices" menu, select "Scan and Parse" (or press F5). A list of found devices appears
- For the desired device, select "USB_Device_Descriptor" on the left. Then, on the right, in the "Custom VID/PID" properties, select "FTDI_Default"
- On the left, select "USB_String_Descriptors". Then enter "FTDI" in the "Manufacturer:" field
- In the "Devices" menu, select "Program" (or press Ctrl+P)
- A recording window appears. In the window, check the box next to the device in the "Device List" list
- Uncheck the "Only Program Blank Device" box at the bottom
- Click the "Program" button
- Turning off the device. It will now be identified as the "FTDI Serial port".

To work with USB readers, give access to the port. By default, users from the dialout group have access to /dev/tty* devices. You can verify this by typing

```
ls -l /dev/ttyUSB0
```

The response will appear

```
crw-rw---- 1 root dialout 188, 0 Feb 25 20:56 /dev/ttyUSB0
```

From where you can see that read and write access is open for the root user and for the dialout group. Add yourself to this group:

```
sudo usermod -a -G dialout $USER  
sudo reboot
```

where \$USER is the user's name, for example administrator. It is not necessary to reboot the system, it is enough to log out and log in again.

To type on the keyboard, the program requires access to /dev/uinput. To check if the program has access, try passing any key number using the "Keyboard Typing" method. If the key number appears in the "Key" field, access is granted. Otherwise, access is denied and the error message

"Cannot type on the keyboard" is displayed.

To grant access:

1. Create a new group (if one doesn't already exist, you can check with `getent group uinput`).

```
sudo groupadd uinput
```

2. Add your user to the new group.

```
sudo usermod -aG uinput $USER
```

где \$USER - user name.

3. Create a udev rule file to set permissions. Create a new file in `/etc/udev/rules.d`, for example, `/etc/udev/rules.d/99-uinput.rules`, with the following content:

```
KERNEL=="uinput", MODE="0660", GROUP="uinput", OPTIONS+="static_node=uinput"
```

You can create a file using the command:

```
sudo nano /etc/udev/rules.d/99-uinput.rules
```

- `MODE="0660"` gives read/write access to the owner (root) and the specified group.
- `OPTIONS+="static_node=uinput"` is often needed to ensure the node is managed correctly across systems.

4. Reload udev rules and trigger the changes.

```
sudo udevadm control --reload-rules  
sudo udevadm trigger --subsystem-match=misc
```

5. Log out and log back in for the group changes to take effect.

Preparing the Z-2 MF CCID reader

1. Install `libccid`, `opencsc` and `pcsc-tools` components:

```
sudo apt install libccid opencsc pcsc-tools
```

2. Connect Z-2 MF CCID to the computer and check if it is found by the system using the command:

```
pcsc_scan
```

or

```
opensc-tool --list-readers
```

3. If the reader is not found, open the file `"/usr/lib/pcsc/drivers/ifd-ccid.bundle/ContentsInfo.plist"` in a text editor as administrator. In this file:
 - Find the array `<key>ifdVendorID</key>` and add the string `<string>0x3168</string>` to it
 - Find the array `<key>ifdProductID</key>` and add the string `<string>0x1356</string>` to it
 - Find the array `<key>ifdFriendlyName</key>` and add the string `<string>IronLogic Z-2 CCID</string>` to it
 - Make sure the strings are added at the same position relative to the beginning of the corresponding array. Save the changes to the file.
 - Disconnect the reader from the computer.
 - Reboot the system.
 - Connect the reader to the computer and check the reader's operation again using the `pcsc_scan` command.

Connecting the Adapter

Connection Z-1 (mod. N Z)

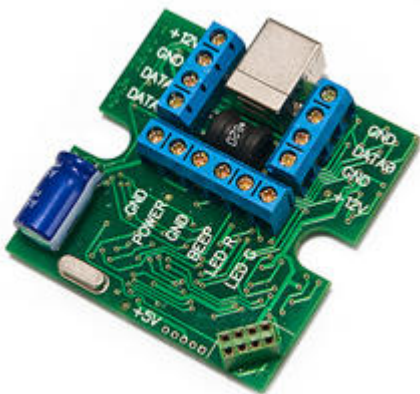


Figure 1. Z-1 Adapter (mod. N Z)



Figure 2. Z-1 Adapter (mod. N Z) (in a housing)

You must connect a reader to the Z-1 adapter (mod. N Z). The reader can be connected via either Wiegand 26 or Dallas TM.

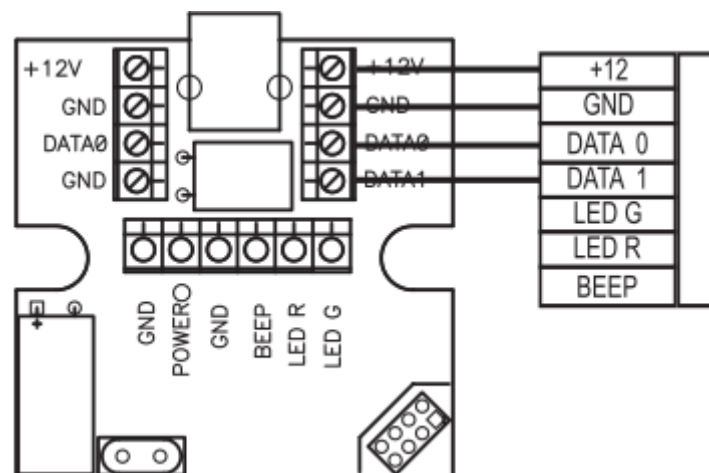


Figure 3. Connecting a reader via the Wiegand 26 protocol

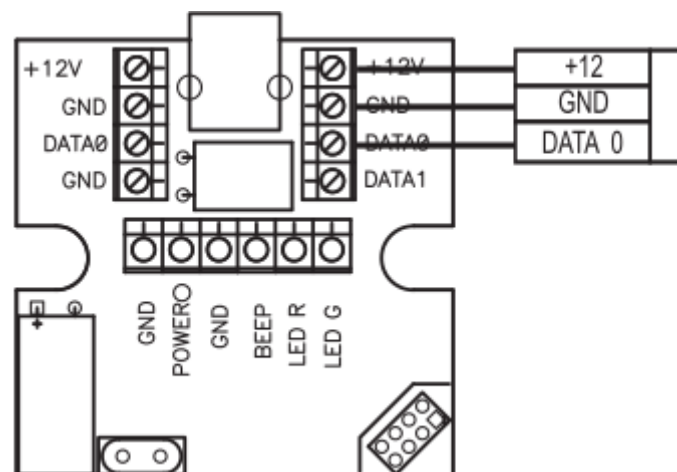


Figure 4. Connecting a reader using the Dallas Touch Memory (I-Button) protocol

When using the BaseZ5R software, it is recommended to connect via the Dallas Touch Memory (I-Button) protocol so that the full key number is transmitted to the software. After connecting the reader to the adapter, you must connect the controller. The adapter has a special connector (terminal block) for this purpose, and the controllers are equipped with contact pins.

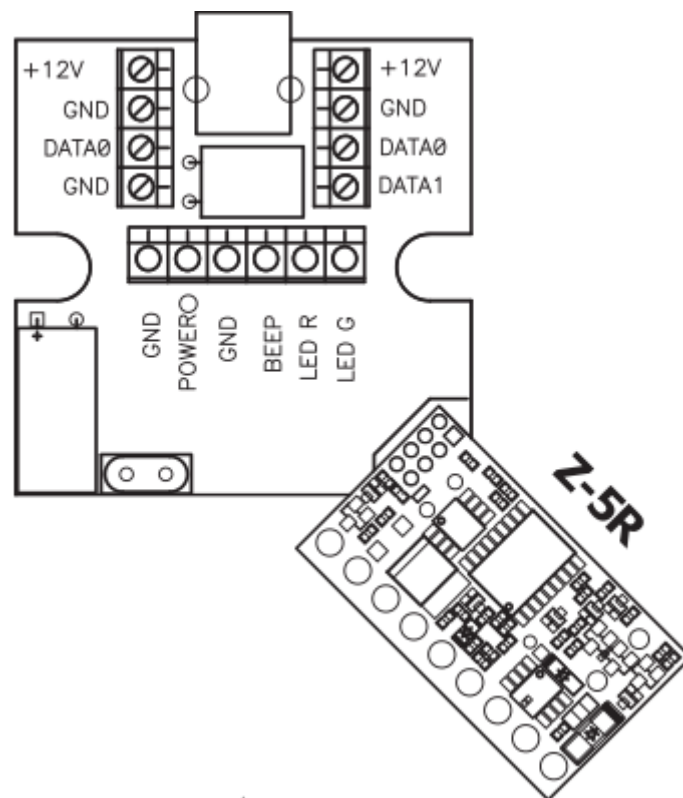


Figure 5. Connecting the Z-5R controller to the Z-1 adapter (mod. N Z)

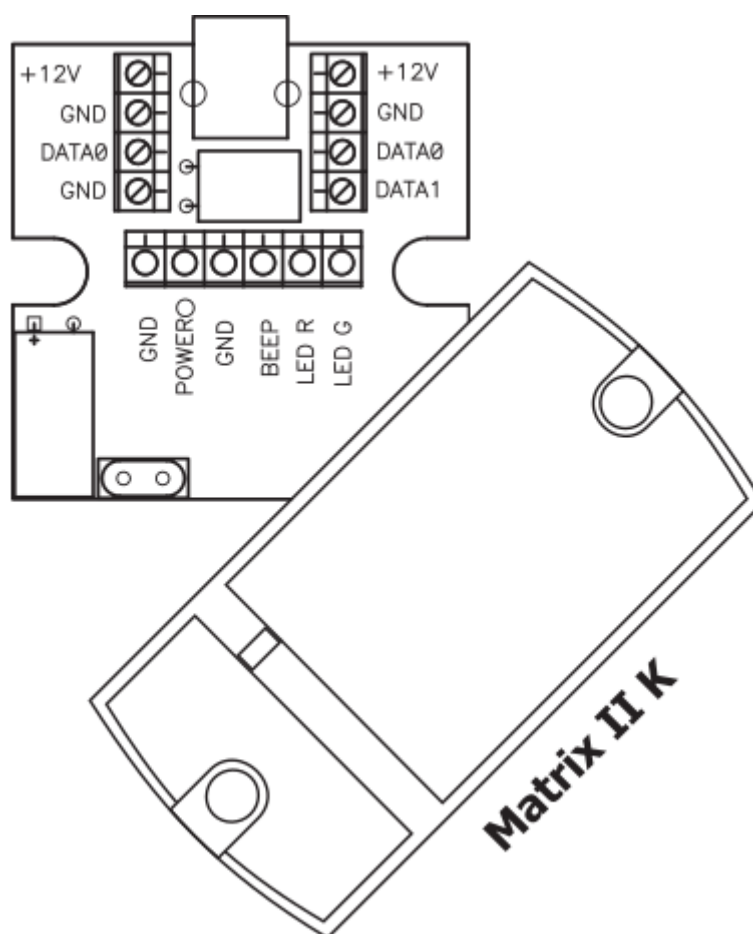


Figure 6. Connecting the Matrix II K controller to the Z-1 adapter (mod. N Z)

After connecting the reader and controller to the adapter, you need to connect the adapter to your computer. To do this, use a USB cable.

Connection Z-2 (mod. E HTZ RF)



Figure 7. Adapter Z-2 (mod. E HTZ RF)



Figure 8. Wiring diagram for the Z-2 adapter (mod. E HTZ RF) to the controller and computer

You need to connect the Z-2 adapter (mod. E HTZ RF) to your computer. To do this, use a mini-USB cable.

Setting Up BaseZ5R

Once the adapter is connected and the program and drivers are installed, you can begin using BaseZ5R.

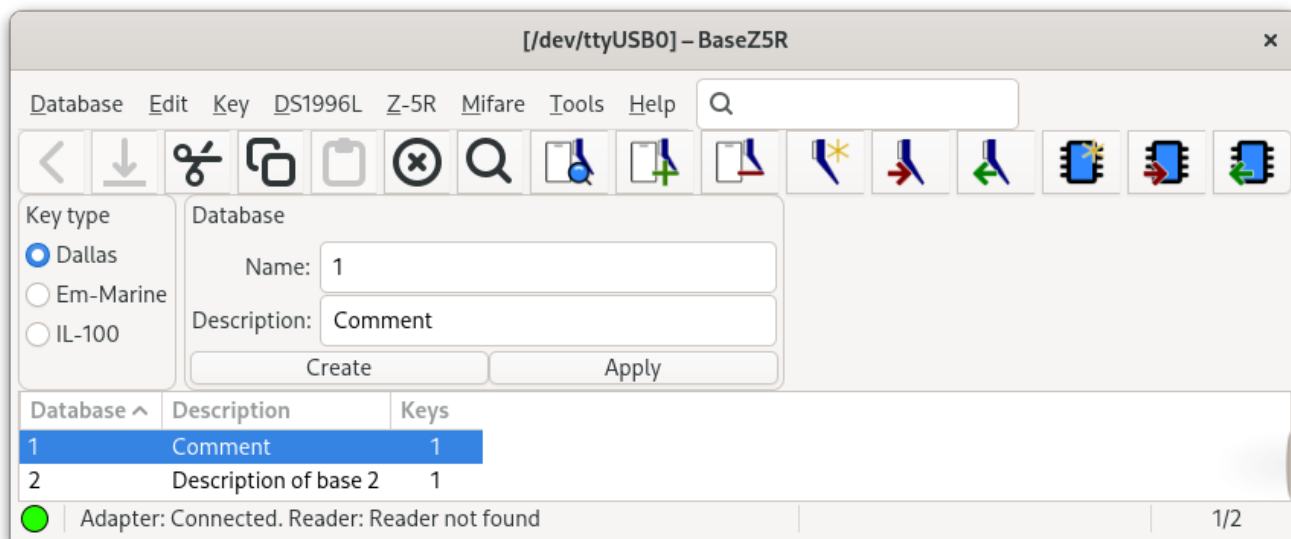


Figure 9. Main window

Open the program and select "Settings..." from the "Tools" menu. In the "Settings" window, select the adapter port you'll be using. If the correct COM port is selected, a green circle will light up. This means the program has detected the adapter and you can begin using it.

Creating a database

After configuring the adapter's COM port, you need to create a database. To create it, follow these steps:

1. In the "Database" panel, enter a name for the database.
2. Enter a description for the database.
3. Click the "Create" button. The created database will appear in the list of databases.

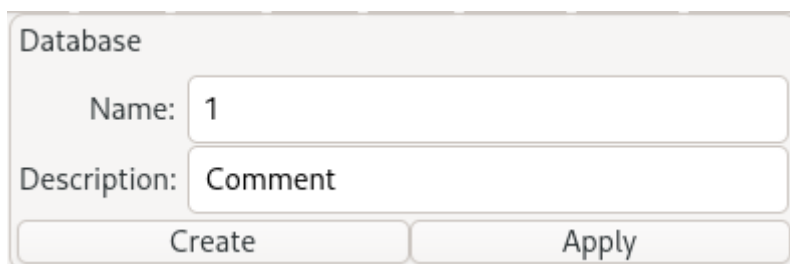




Figure 10. Database panel

By default, databases are created in the "~/config/bazez5r/bases" folder. This folder can be changed in the "Settings" window (menu "Tools" → "Settings...").

Adding keys to the database

Method 1

Using an adapter

1. Open the database by double-clicking it.
2.  Click the "Add Key Mode" button ()
3. In the "Key Type" panel, select the key standard to scan.
4. Hold your cards/key fobs near the reader. They will appear in the key list.

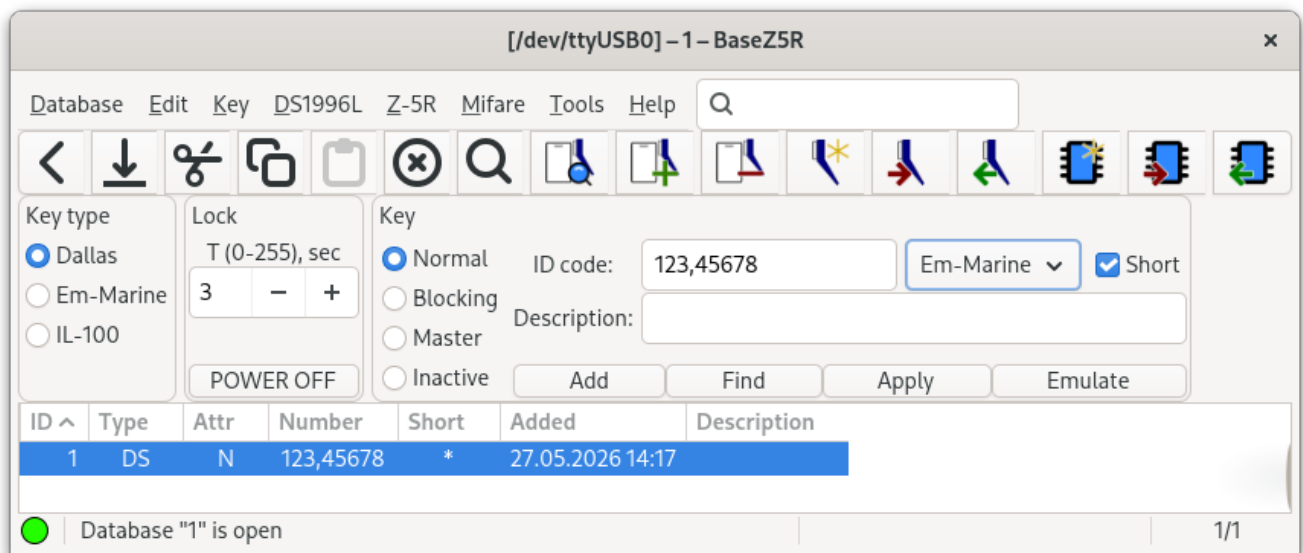




Figure 11. The "Add Key Mode" button and the "Key Type" panel

If the Z-1 adapter (mod. N Z) is used when working with the program, the cards/key fobs are held near the connected reader. If the Z-2 adapter (mod. E HTZ RF) is used, the adapter itself acts as the reader.

Method 2. Using a desktop reader

1. Connect a desktop reader (e.g., Z-2 USB)
2. In the "Settings" window, select the reader port (menu "Tools" > "Settings...")
3. Open the database by double-clicking it
4.  Click the "Add Key Mode" button (). The status bar will display "...Reader: Connected"
5. Hold cards/key fobs near the desktop reader. They will appear in the list of keys

Method 3. Manually

1. Open the database by double-clicking it.
2. In the "Key" panel, enter the key parameters:
 - a. To the right of the "Number" field, select the number format and enter the key number in

the "Number" field.

b. Select the key type (Normal, Blocking, Master, Inactive).

c. Enter the key owner's name in the "Description" field.

3. Click the "Add" button. The added key will appear in the list of keys.

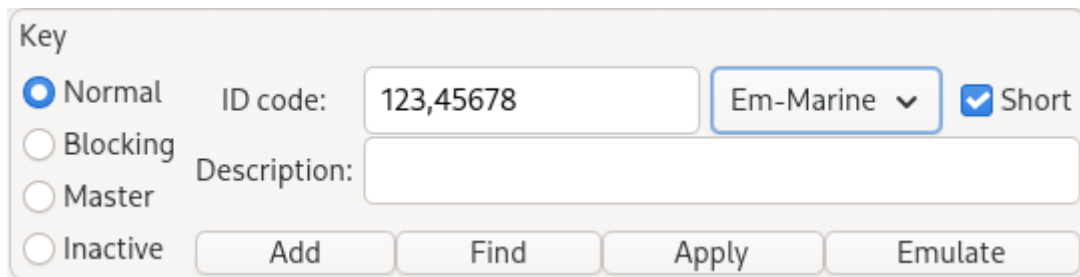
The image shows a 'Key' panel with several input fields and buttons. On the left, there are four radio buttons for key types: 'Normal' (selected), 'Blocking', 'Master', and 'Inactive'. To the right of these is an 'ID code' field containing '123,45678'. Further right is a dropdown menu currently showing 'Em-Marine' with a downward arrow, and a 'Short' checkbox which is checked. Below the ID code field is a 'Description' text area. At the bottom of the panel are four buttons: 'Add', 'Find', 'Apply', and 'Emulate'.

Figure 12. Key Panel

The number can be entered in one of the following formats:

- **Hexadecimal** – one number in hexadecimal notation (low byte on the right), e.g., "0103EB3C09"
- **Em-Marine** – two numbers in decimal notation (third byte and lower two bytes), separated by a comma (','), e.g., "235,15369"
- **Em-Marine + code** – similar to "Em-Marine", but in square brackets – the manufacturer's code, three bytes in hexadecimal notation (low byte on the right), e.g., "[000103] 235,15369"
- **Decimal** – one number in decimal notation, e.g., "000004360715273"
- **Decimal bytes** – six numbers in decimal notation, separated by spaces, for example, "000 001 003 235 060 009"

If the full key number is not known, then set the "Short" flag.


Key types:

- **Normal** – used only for access. The lock opens when the key is presented to the reader.
- **Blocking** – allows access and enables/disables "Blocking" mode. In "Blocking" mode, access is permitted only with blocking keys; access with standard keys is prohibited. When accessing with blocking keys, the lock opens when the key is removed from the reader.
- **Master** – controls the controller's operating modes but does not open the lock.

Method 4. Copying from another database (Ctrl+C, Ctrl+V)

1. Open the database from which you want to copy keys

2. Select the keys in the list you want to copy by left-clicking on them. If you need to copy multiple keys, hold down the Ctrl key and left-click on the remaining keys you want to copy.


3. Press Ctrl+C on your keyboard (or click )

4.

Close the database by pressing Escape (or click )

5. Open the database to which you want to add keys

6.

Press Ctrl+V on your keyboard (or click ) . The added keys will appear in the list of keys.

Editing the database

Open the database by double-clicking on it.

Changing key parameters

1. In the list of keys, select the key you want to edit by left-clicking on it.
2. In the "Key" panel, change the key's parameters (similar to adding a key manually).
3. Click the "Apply" button.

Changing the lock opening time

In the Lock panel, enter a time between 0 and 255 seconds.

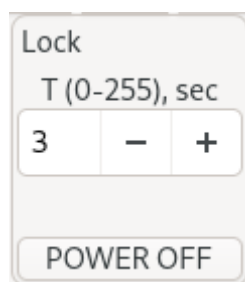


Figure 13. The "Lock" panel

Deleting keys from the database

1. Open the database by double-clicking it.
2. In the key list, select one or more keys to delete.
 - a. To select a single key, left-click it.
 - b. To select a range of keys, left-click the first key in the range, hold down the Shift key, and left-click the last key in the range.
 - c. To select multiple keys in different places in the list, left-click the first key, and hold down the Ctrl key, and left-click the remaining keys.
 - d. To select all keys, press Ctrl+A.
3. Press the Delete key.

Writing a database to the controller and reading a database from it

Method #1. Through the block

To write the database to the controller:

1. Connect the controller via the connector on the adapter
2. Open the key database
- 3.

In the "Z-5R" menu, select "Database -> Z-5R Controller" or press the button



To read the database from the controller:

1. Connect the controller via the connector on the adapter
2. Open the key database
- 3.

In the "Z-5R" menu, select "Z-5R Controller -> Database" or press the button



Method #2. Using the DS1996L key (holds up to 1363 keys)

To write the database to the controller:

- 1.

In the "DS1996L" menu, select "Database -> DS1996L" (or press



2. Hold the DS1996L key (included with the adapter) close to the contactor until all keys are written.
3. Clear the controller's memory by closing the jumper, then power on the controller. While it beeps (indicating that the key database is empty), hold the DS1996L key close to it until all keys are transferred.

To read the database from the controller:

- 1.

In the "DS1996L" menu, select the "Prepare" command (or press



2. Hold the DS1996L key close to the controller until all keys are transferred.
3. Open the key database
- 4.

In the "DS1996L" menu, select the "DS1996L -> Database" command (or press



Method #3. Via Z-1 (mod. N Z) with DS1996L emulation (jumper)

To program the database into the controller:

1. Connect the Z-5R to the Z-1 (mod. N Z) using diagram 3 (DS1996 emulation)

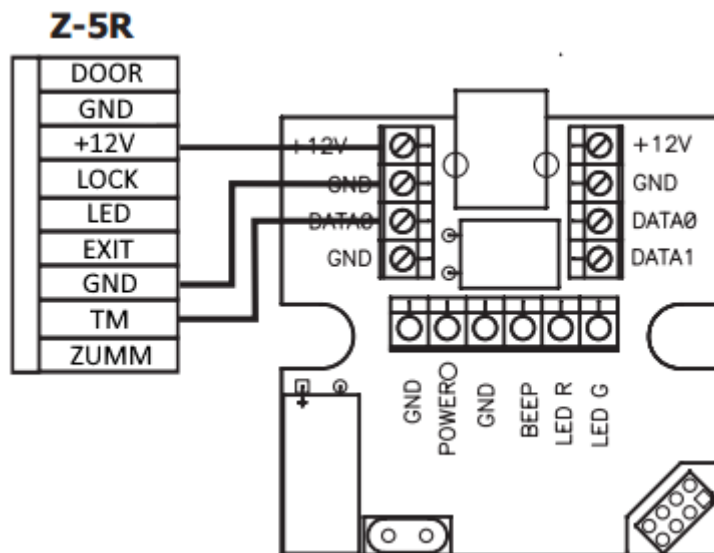


Figure 14. Scheme 3

1. Clear the controller's memory with a jumper
2. Apply power
3. While the controller is beeping, select **"Emulation: Database -> DS1996L"** from the **"DS1996L"** menu.

Method #4. Via Z-1 (mod. N Z) with DS1996L emulation (master key)

To write the database to the controller:

1. Connect the Z-5R to the Z-1 (model N Z) using diagram 3 (DS1996 emulation)
2. Using the master key, put the controller into key adding mode: 1km 1dm (by presenting the master key to the reader or using the **"Emulate"** button in the BaseZ5R). To emulate presenting the master key, enter its number in the "Number:" field and press and hold the **"Emulate"** button. Depending on the duration of the press, a short or long touch is emulated. For instructions on putting the controller into key adding mode, see the controller's datasheet.
3. In the **"DS1996L"** menu, select **"Emulation: Database -> DS1996L"**

To read the database from the controller:

1. Connect the Z-5R to the Z-1 (model N Z) using diagram 3 (DS1996 emulation)
2. Open the key database
3. Using the master key, put the controller into key adding mode: 1km 1dm (by presenting the

master key to the reader or by pressing the "Emulate" button in the BaseZ5R)

4. Once the Z-5R enters the key adding mode in BaseZ5R, in the "**DS1996L**" menu, select "**Emulation: DS1996L -> Database**"

Power on/off Z-1 (mod. N Z)

To turn off the power on the POWER (+12V) contact:

1. Open the base
2. Press and hold the "**POWER OFF**" button. Pressing the button turns the power off; releasing it turns the power on.

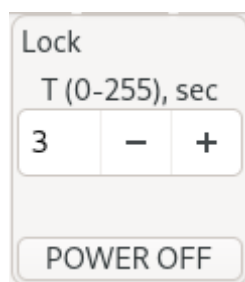


Figure 15. The "Lock" panel

Import and export keys

The import/export commands are located in the "Database" menu. BaseZ5R allows you to import/export CSV files. Before importing/exporting a list of keys, you must open the database. Before exporting, we recommend selecting the "Hexadecimal" format in the "**Key**" panel to export the full key number (all 6 bytes). Before importing, select the same format in the "**Key**" panel that was selected during export. For backups, copy database files in **.dbf format (the database folder is specified in the *Settings window: "Tools" > "Settings..." menu)**.

Comparison of two databases

To compare two databases, first select one database, then hold down the Ctrl key, left-click the second database, and press Enter. In the "**Compare**" panel, select the parameters by which to compare the key lists (set flags), and then click the "**Compare**" button. A message will appear indicating "The key lists are the same" or "The key lists are different." The differing parameters in the key lists will be highlighted in red.

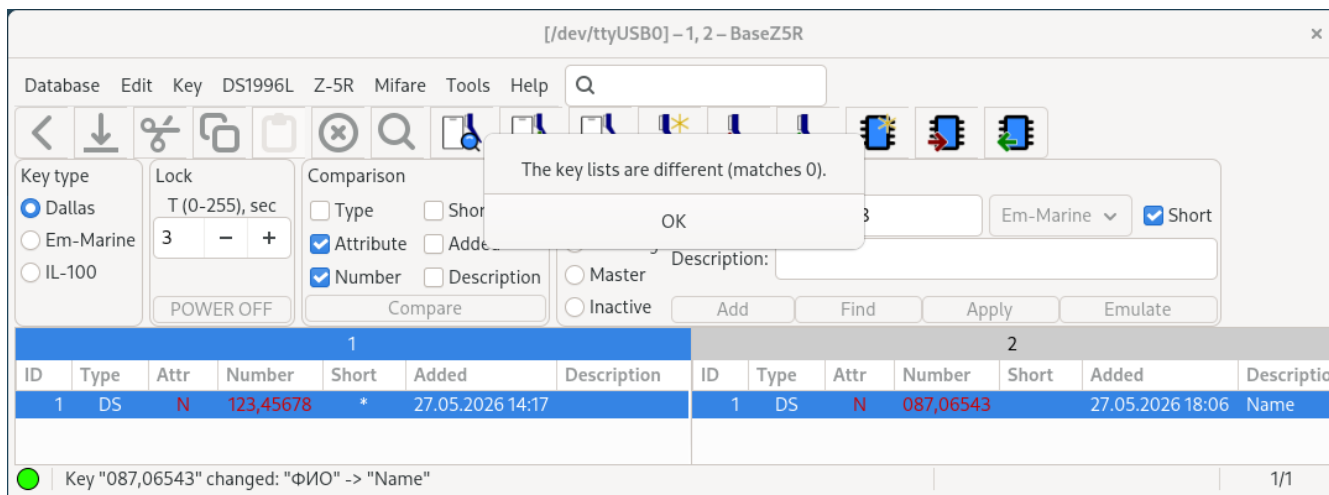




Figure 16. The result of comparison of two databases

Search for a key in all databases

To search for keys in all databases:

1.  Click the  button. The "**Search**" window will appear.
2. Enter the required search parameters:
 - a. Check the box with the desired parameter name.
 - b. Enter the parameter value (for example, the key number as shown below).
3. Click the "**Search**" button. A list of found keys will appear in the "**Result**" list.
4. Double-click the found key. The database will open and the found key will be highlighted; the "**Search**" window will not close.

Search [X]

☒ Key number:

123,45678 Em-Marine ▼ ☐ Short

☐ Date the key was added

From: 20.05.2026 To: 22.05.2026

☐ Key attribute

☐ Normal ☐ Blocking ☐ Master ☐ Inactive

☐ Description:

☐ Match whole word ☐ Match case ☐ Use Regular Expressions

Result:

Database	Description	Record #
1	Comment	1

Search completed. Found 1 keys. **Find**

Figure 17. The "Search" window with the found key

Writing the key number to the Temic key (creating a copy of the key)

Using the Temic key (T5557, T5577) and the Z-2 USB or Z-2 reader (mod. E HTZ RF), you can make a copy of the Em-Marine or HID key.

1. Connect the reader to the PC
2. Select the reader port in the "Settings" window (menu "Tools" > "Settings...")
3. Open the database
4. Select the key whose number you want to write to Temic
5. Place the Temic key in the reader field (Z-2 USB or Z-2 (mod. E HTZ RF))
6. In the menu "Key" → "Write number to Temic" select the key type Em-Marine or HID. The message "Writing successful" will appear.

Questions and Answers

1. Why does the controller beep continuously when I bring the key to the reader?

The door opening time is set too long. Check the "**T= (from 0 to 255)**" parameter in the "**Lock**" panel.

2. Why are the wrong keys and opening times read from the controller when reading the database?

The controller is not connected to the adapter via the header or there is no contact. If the controller is connected to the Z-1 (mod. N Z) in DS1996L emulation mode, then:

- The controller must be connected to the Z-1 (mod. N Z) using [scheme 3](#) from the Z-1 (mod. N Z) data sheet.
- To read keys from the controller, you need to:
 - Using the master key, put the controller into key adding mode: 1km 1dm (by presenting the master key to the reader or using the "**Emulate**" button on the "**Key**" panel)
 - Once the controller enters key adding mode, in BaseZ5R, in the "**DS1996L**" menu, call the "**Emulation: DS1996L -> Database**" command.
- There are 2 ways to write keys to the controller:
 - Method #1:
 - i. Clear the controller's memory with a jumper.
 - ii. While the controller is beeping, call the "**Emulation: Database -> DS1996L**" command.
 - Method #2:
 - i. Using the master key, put the controller into Key adding mode: 1km 1dm (by presenting the master key to the reader or using the "**Emulate**" button on the "**Key**" panel)
 - ii. When the Z-5R enters key adding mode, in the BaseZ5R, press the "DS1996L" menu and select "**Emulation: Database -> DS1996L**"
- To emulate a master key presentation, enter its number in the "**Number:**" field, and press and hold the "**Emulate**" button. Depending on the duration of the press, a short or long press is emulated.
- How to switch the controller to key adding mode is described in the controller's datasheet

3. Why are not all keys registered when transferring the key database from DS1996L to the controller?

Most likely, contact with the DS1996L was lost within 16 seconds, and the controller timed out. If, after the base begins receiving data, the controller signals a loss of contact with the DS1996L key, reattach the key within 16 seconds. The controller signals completion of reception in the same way in both cases: 1) upon successful reception of all keys, and 2) upon timeout.

4. Why, after executing the "**Test controller memory**" command, does reading from the controller return incorrect data (lock time and key list)?

This command redefines the controller's physical memory size. This overwrites some memory areas, corrupting previously recorded data (lock time, key list). This data must be rewritten

from the database to the controller. This command should only be used if errors occur when writing to or reading from the controller.

Appendix 1. Hotkeys

Ctrl+A	Select all
Ctrl+X	Cut selection to clipboard
Ctrl+C	Copy selection to clipboard
Ctrl+V	Paste from clipboard
Delete	Delete selected
Ctrl+F	Search the list
Ctrl+Shift+F	Search keys in all databases
Ctrl+,	Show the Settings window
F1	Show user manual
F2	Enable key search mode in an open database
F3	Enable key addition mode in an open database
F4	Enable key deletion mode in an open database
F6	Prepare the DS1996L key for reading the database from the controller
F7	Write the database to the DS1996L key
F8	Read the database from the DS1996L key
F9	Clear the Z-5R controller memory
F11	Write the database to the Z-5R controller
F12	Read the database from the Z-5R controller
Ctrl+Q	Exit the program

In the database list mode:

Return	Open database
--------	---------------

In key list mode:

Escape	Close the database
Ctrl+S	Save changes to an open database