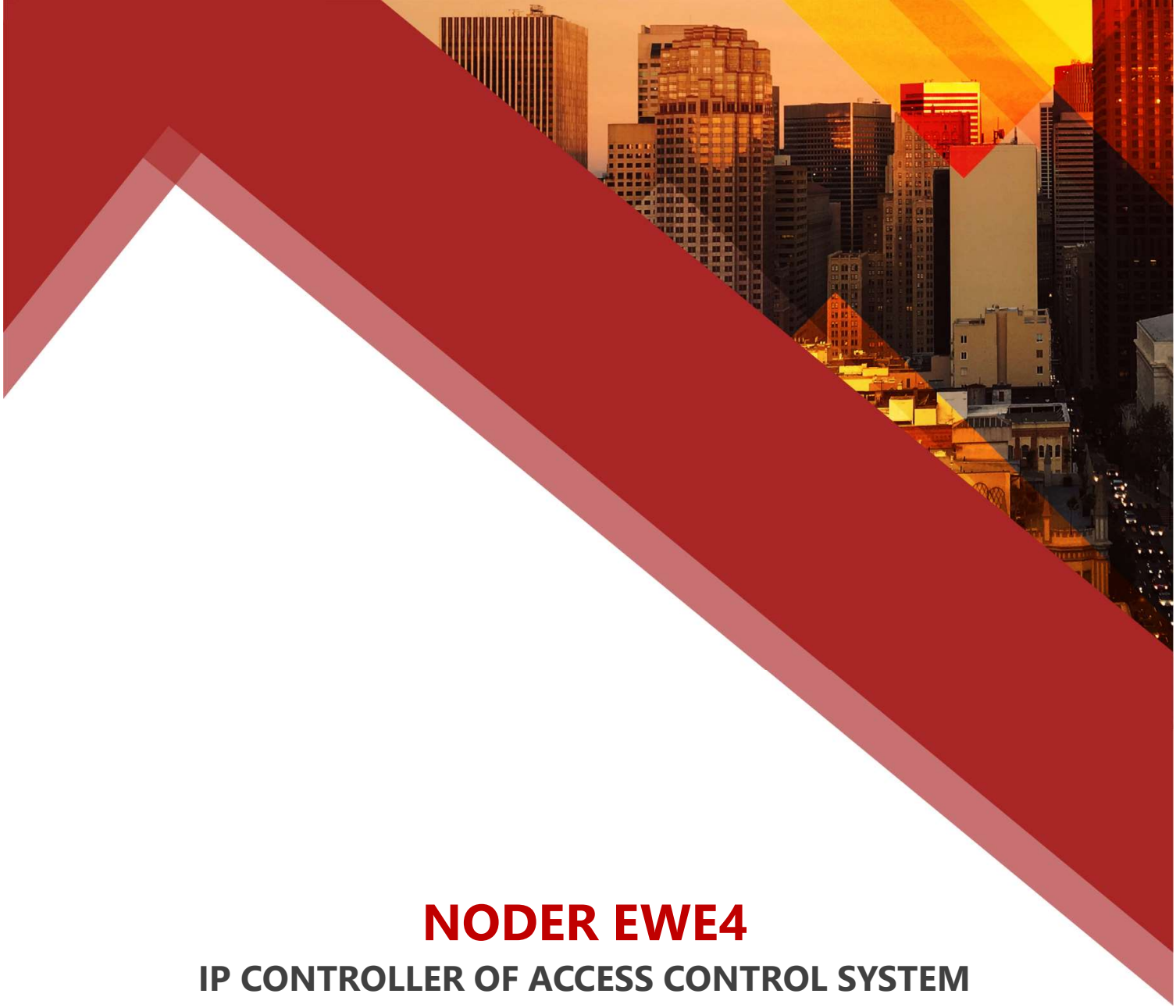

# NODER EWE4

## IP CONTROLLER OF ACCESS CONTROL SYSTEM

## Technical Documentation

Ver.1.3_032020

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# 1. Protection

Before installing this device, read these instructions. Failure to follow the instructions may result in malfunction or even damage to the equipment. The manufacturer is not liable for damages caused by negligence. Entering any modifications to the device that are not authorized by the manufacturer or performing independent repairs results in the loss of rights resulting from the warranty.

# 2. Warning

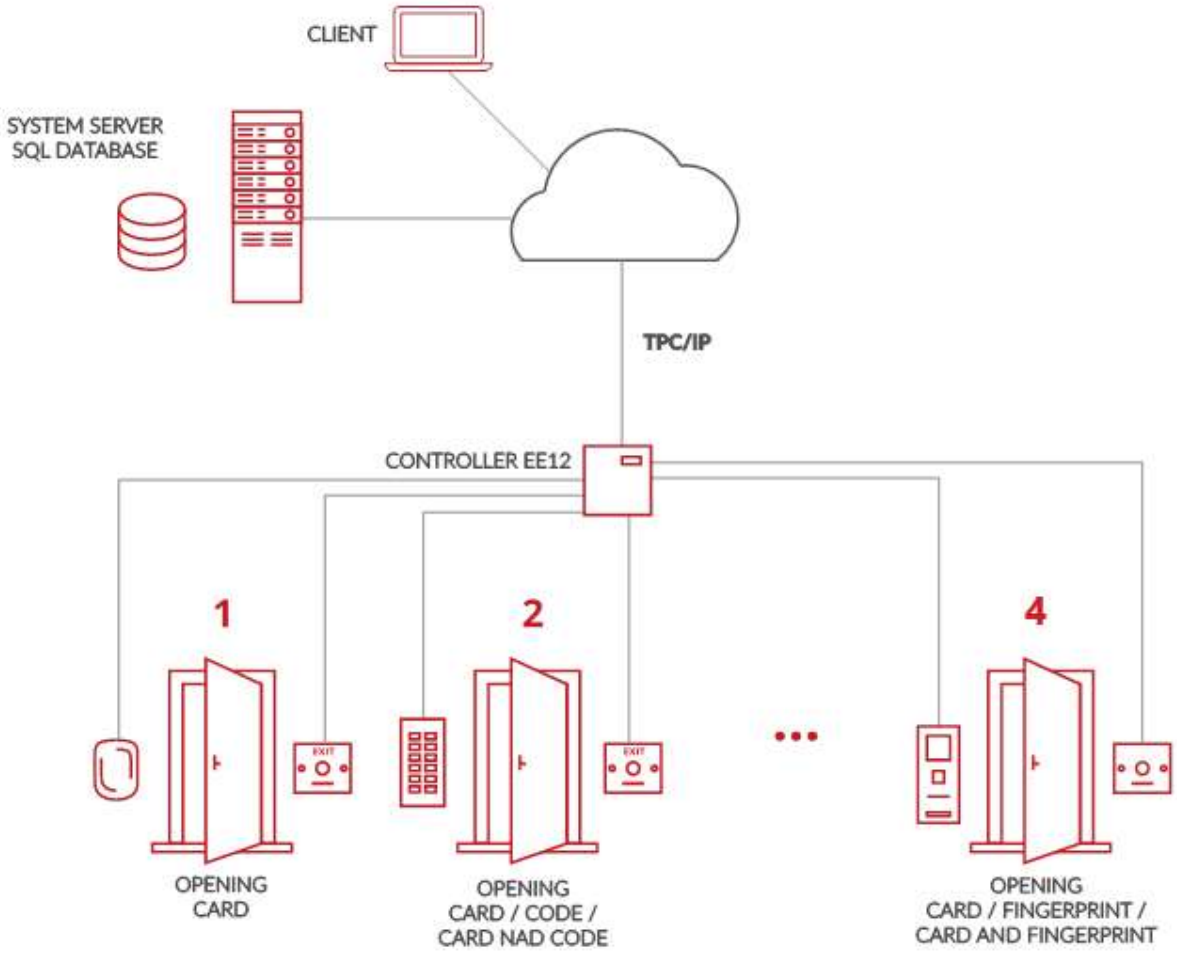
Electric device under voltage. Before performing any activities related to the power supply (connecting wires, installing the device, etc.), make sure that this device is not connected to the power supply. The assembly should be made by person with appropriate electrical qualifications.

# 3. Device description

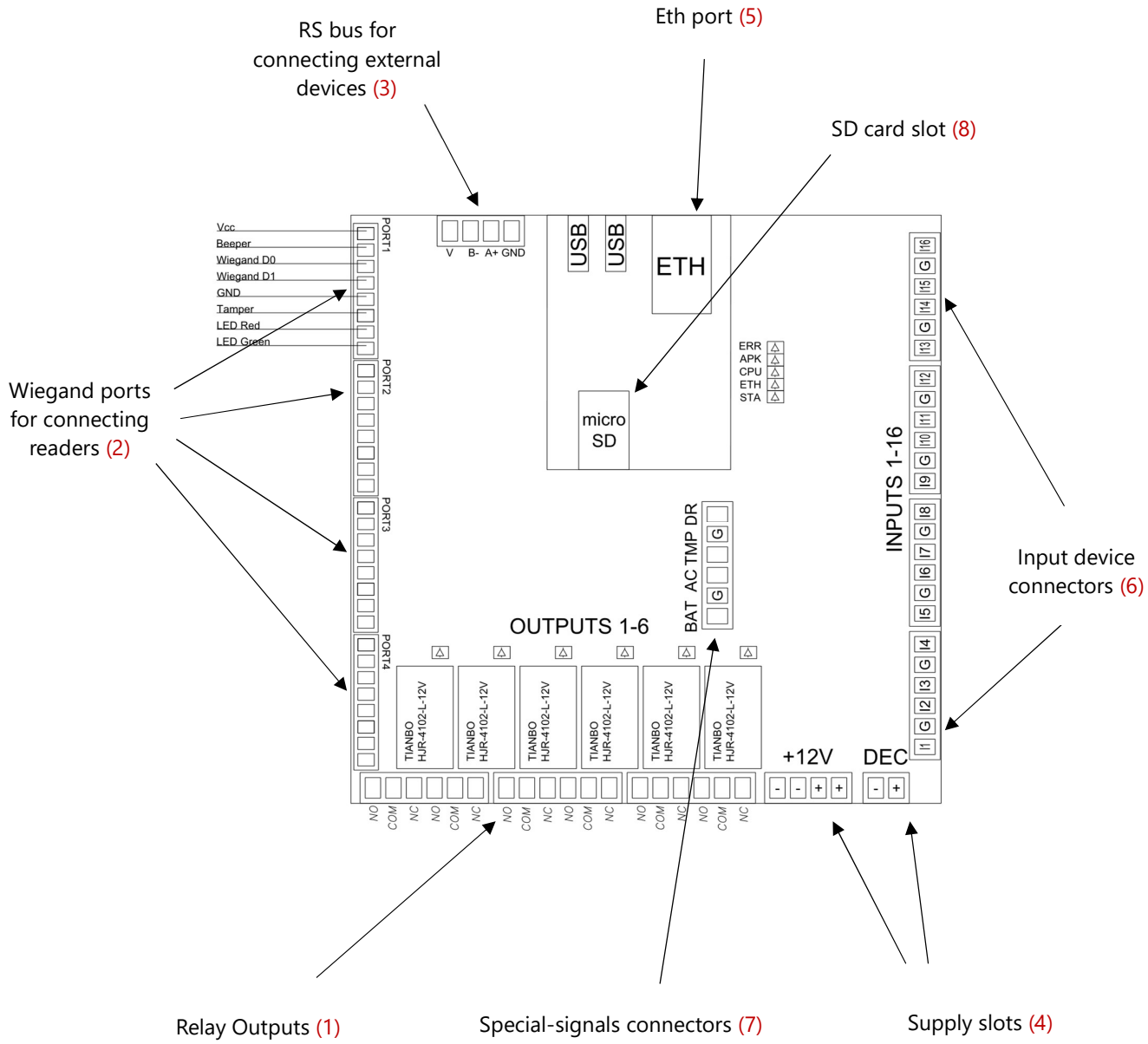
The IP Controller of the Access Control System is an advanced microprocessor I / O device for automated user identification. It can be used in building security systems, access control, time&attendance, hotel and recreational facilities. Leading and managementing system is **Axxon Intellect** platform.

# 4. System architecture

The EWE4 controller operates in the client-server architecture in the Eth connection with the Axxon Intellect leading system. The controller has its own database enabling autonomous operation of the device in case of loss of network connection with the superior system and the possibility of event registration. After reconnection, the central system of the events is automatically downloaded from the controller.



# 5. Device construction




The device consists of a printed plate with microprocessors on it, signaling diodes, socked plugs with connectors (6), transmitters (1), connection ports (5) and others. In SD card slot (8), card should be installed in case of updating the controller software. It is possible to install software and database on the memory card to significantly increase the number of users of the system. The relay outputs (1) are used for control reverse-locks, electromagnetic switches, gates and other system executive elements.

# 6. Characteristic

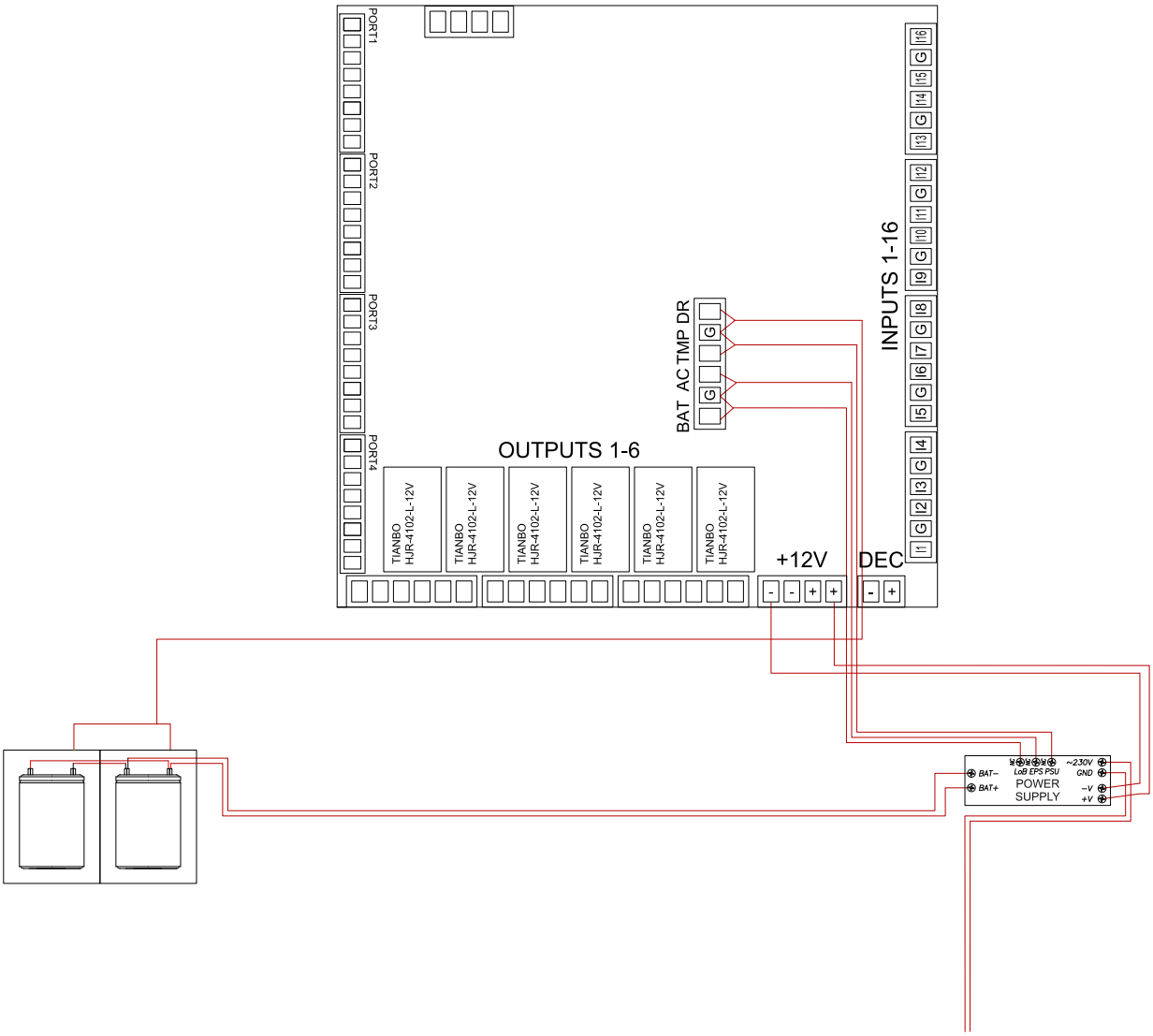
| | |
|---|---|
| **CONTROLLER TYPE** | **EWE4** |
| **SUPPORTED PASSING TYPE** | 4 passes with one-sided access contro lor 2 passes with two-sided acces control (any combination is possible) |
| **NUMBER OF CARDS** | 1 024 000[1] |
| **NUMBER OF STORED EVENTS** | 2 048 000[1] |
| **FUNCTION OF PREVENTING RETRIEVE AND ZONE CONTROL** | If connected to the server – global AntiPassBack.<br>In autonomic operating mode – local AntiPassBack. |
| **UPDATE OF DRIVER SOFTWARE** | Remote |

[1] Values are adequate to the built-in memory of the device.

| **Technical Specification** | |
|---|---|
| **NUMBER OF SUPPORTED READERS** | Up to 4 (Wiegand or RS-485) |
| **SUPPORTED READER INTERFACE** | Wiegand: up to 64 bits, RS native AES with encapsulation, OSDPv2 |
| **COMPATIBLE READERS TYPE** | Proximity, biometric, bar, magnetic, OCR, ICR, OMR, RFID UHF |
| **COMMUNICATION WITH READERS** | 4x Wiegand or 1x RS-485 |
| **COMMUNICATION WITH SERVER** | LAN/WAN |
| **PROGRAMMABLE INPUTS** | 16 parameterized inputs<br>(reed switches, buttons, alarm detectors, etc.) |
| **PREDEFINED INPUTS** | 4 parameterized inputs (AC, BAT, TMP, DR) |
| **PROGRAMMABLE OUTPUTS** | 6 relay outputs NO/NC, 3 A, 24 VDC<br>(electric strike, tripod, signaller, etc.) |
| **CLOCKWORK POWER SUPPLING DURING POWER LOSS** | CR battery |
| **SUPPLY VOLTAGE** | 12 VDC |
| **POWER CONSUMPTION (WITHOUT READERS)** | ~120mA, max 240mA (starting the device) |
| **DIMENSIONS** | 125 x 125 x 28 mm (4.92x 4.92 x 1.10 in.) |
| **WEIGHT** | 290 g (0.64 lb) |
| **WORKING TEMPERATURE** | -10 °C - +55 °C |
| **STORAGE TEMPERATURE** | -20 °C - +70 °C |
| **AMBIENT HUMIDITY** | <80% |
| **NORMS** | CE |

# 7. Power connection

Controller should be powered from a 12 V DC buffer power supply. The construction of the controller's power connector allows to power further electronic devices (such as controllers, modules, etc.). Do not connect inductive devices to the connector, as they may cause power disturbances. These devices should be directly connected to the power supply terminals..




Special inputs can be freely configured and used, for example, as reed contacts, but their default purpose shown in the above example is:

- BAT – signal of discharged batteries (input 21)
- AC – no 230 V power supply (input 22)
- TMP – damage 12V DC power supply (input 23)
- DR – serial connection of all tamper cabinet doors and wall mounting (input 24)

## 7.1 Contoller built-in electrical protections

Controller is equipped with overcurrent protection using PTC polymer fuses with the following loads:

- Power input: 1,5A
- Power outputs of Wiegand readers: 0,2A
- RS485 bus: 0,75A

and overvoltage protections using Zener diodes on the RS485 bus, digital / analog inputs and at the reader inputs: Wiegand D0, Wiegand D1, Tamper.

# 8. Readers connection

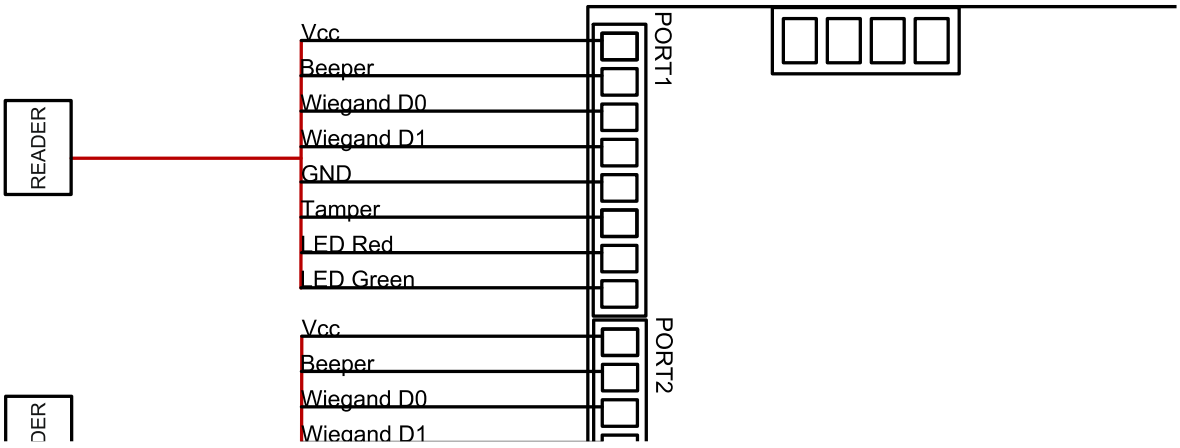
EWE 4 controller allows to connect 4 Wiegand readers or 4 RS485 readers in any configuration (eg 1 Wiegand + 3 RS). Port RS485 can be used to connect to the reader via OSDPv2. The physical connection of the readers is the same.

Wiegand cabling requirements:

- up to 60m YTDY cable 8x0.5 mm$^2$ (0.4mm$^2$ permissible). UTP cable is not recommended. Possibly YTKSY 4x2x0,5;
- over 60m, but no more than 150m, 0.75-1.0 mm$^2$ diameter wires.

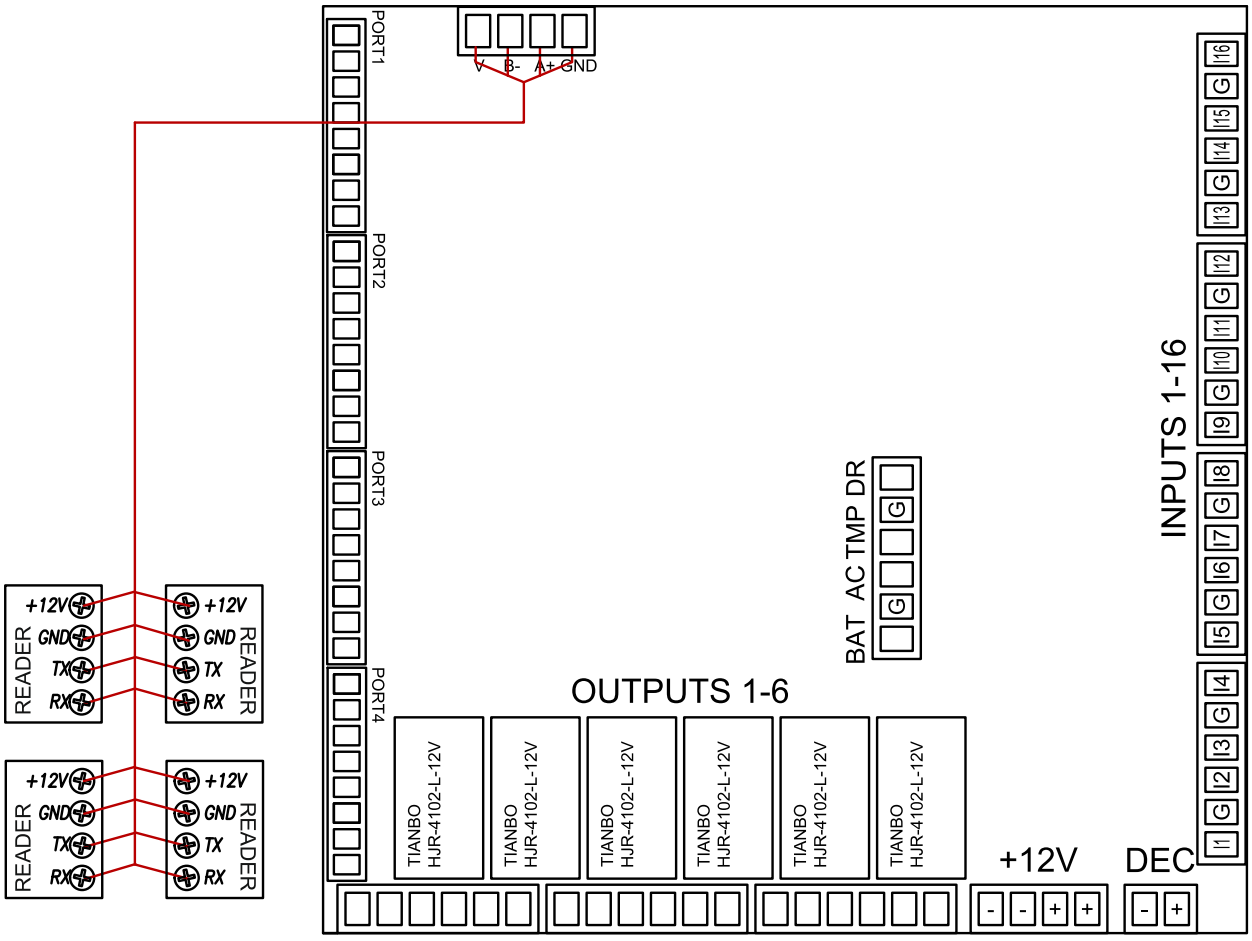
Requirements for RS485 bus:
Bus should be from the reader to the reader, but it is permissible to combine readers in so-called "star" for short distances. The maximum length of the bus must not exceed 1200m. In the case of a several hundred meter bus, appropriate measurements and line adjustment should be performed with terminating resistors. For connecting the readers, UTP cat. 5e cables can be used, for longer distances it is recommended to use shielded cables. The cross-section of the wires should be adjusted to the distance so as not to exceed the permissible voltage drops for the readers used.

## 8.1 Connecting Wiegand readers



## 8.2 Connecting RS readers by internal protection

RS485 bus terminals (V, GND) can be used to connect the readers.
In case of a short circuit on the bus, the built-in overcurrent bus protection (0.75A) or controller (1.5A) will work.



## 8.3 Connection via DEC connector

As an alternative to supplying readers, you can use the DEC voltage connector (12V DC), which makes it possible to reset the readers' power supply if necessary (eg when addressing Noder serial readers which are in the addressing mode for the first 10 seconds after connecting the power supply). However, this requires additional protection, because the current directly supplied to the power input of the + 12V controller is without additional protection transferred to the DEC connector.

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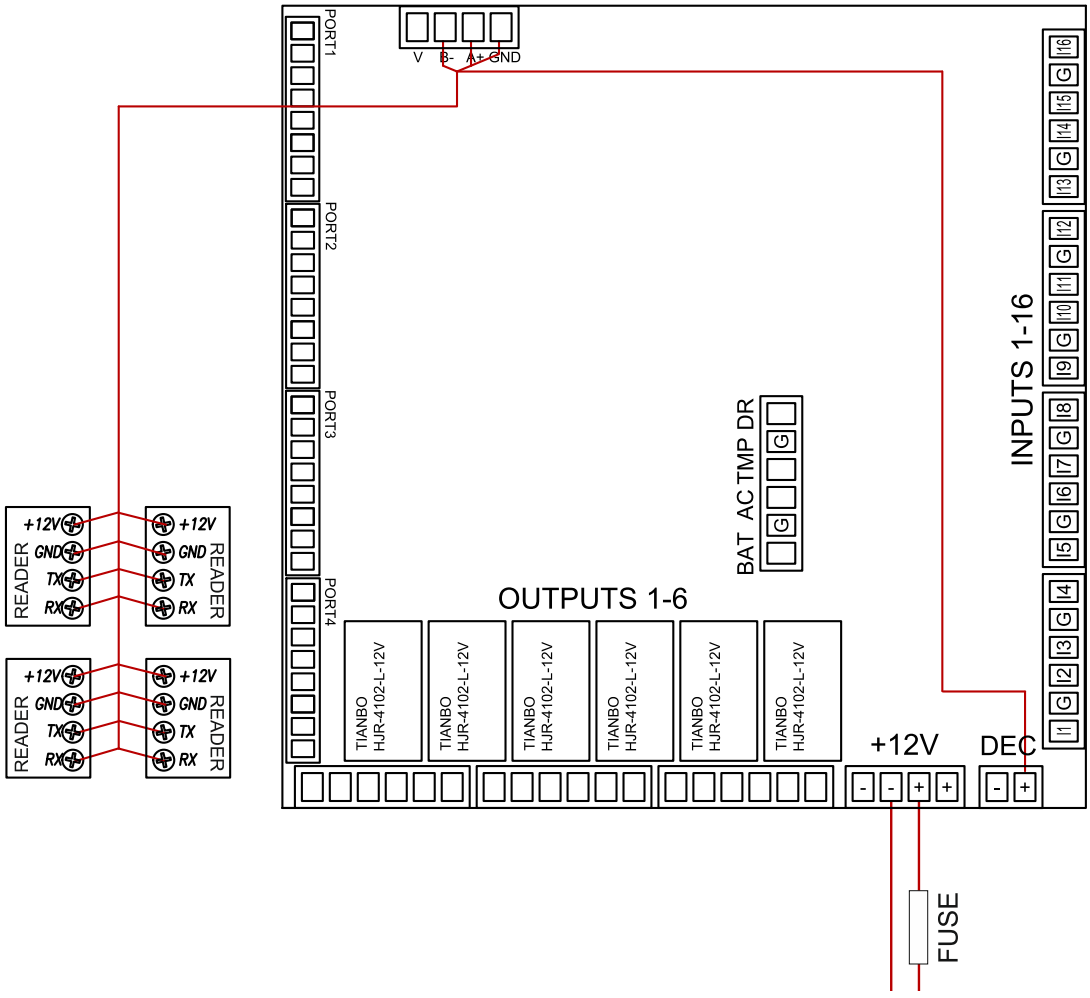
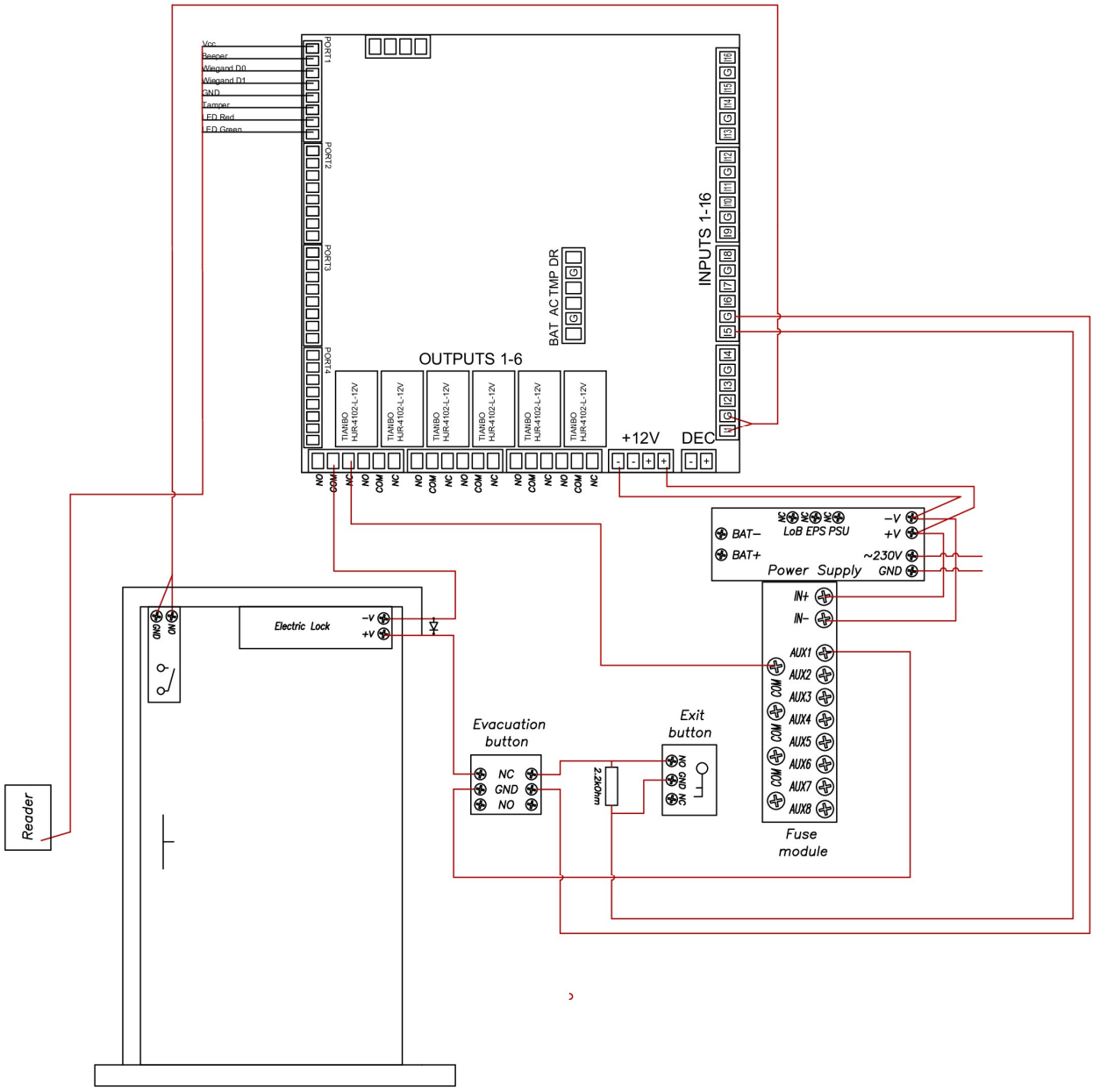


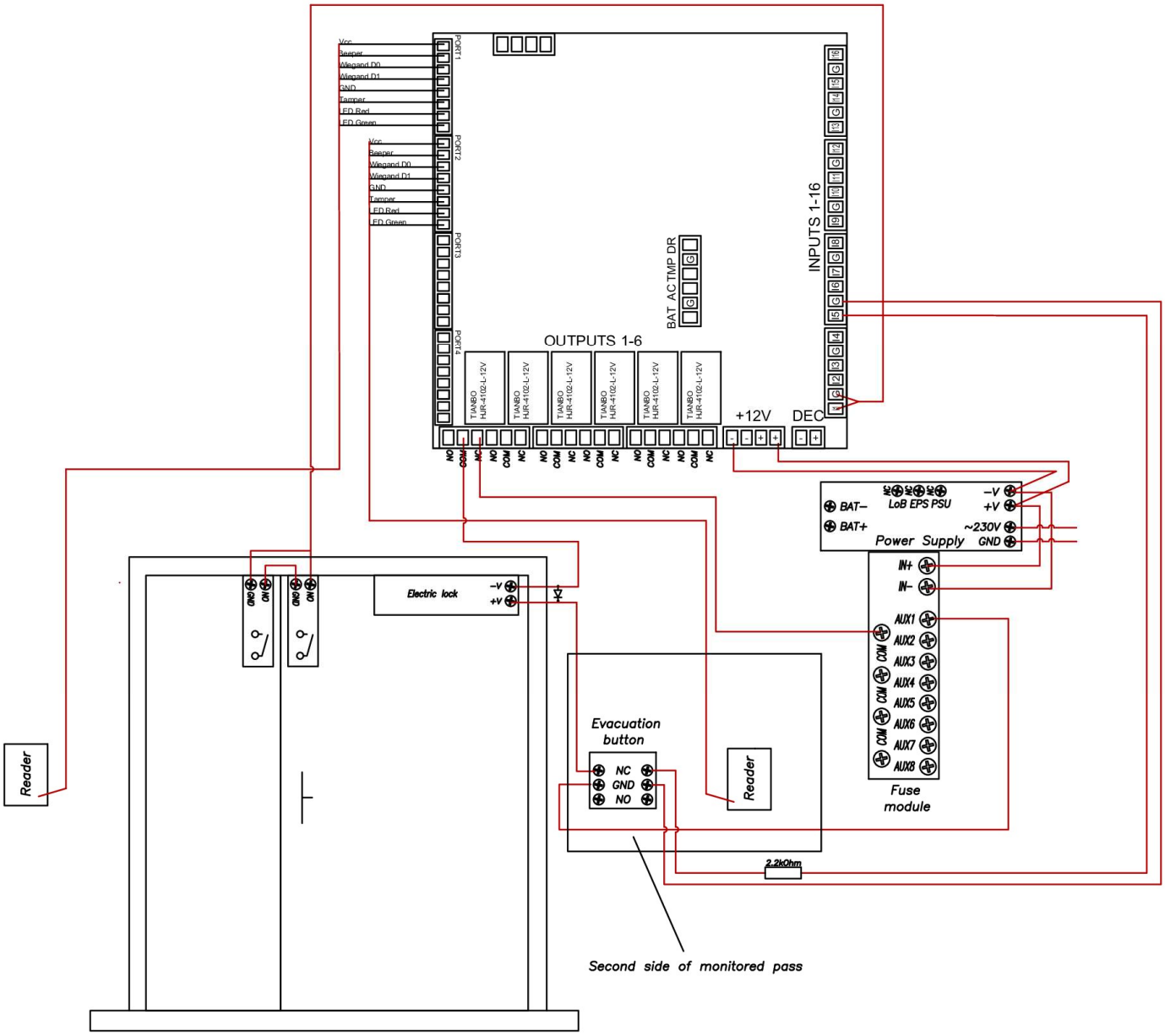

Value of protection should be adjusted to the number and power of connected readers. The protection used must not exceed 2A.

# 9. Scheme for connecting devices to the controller

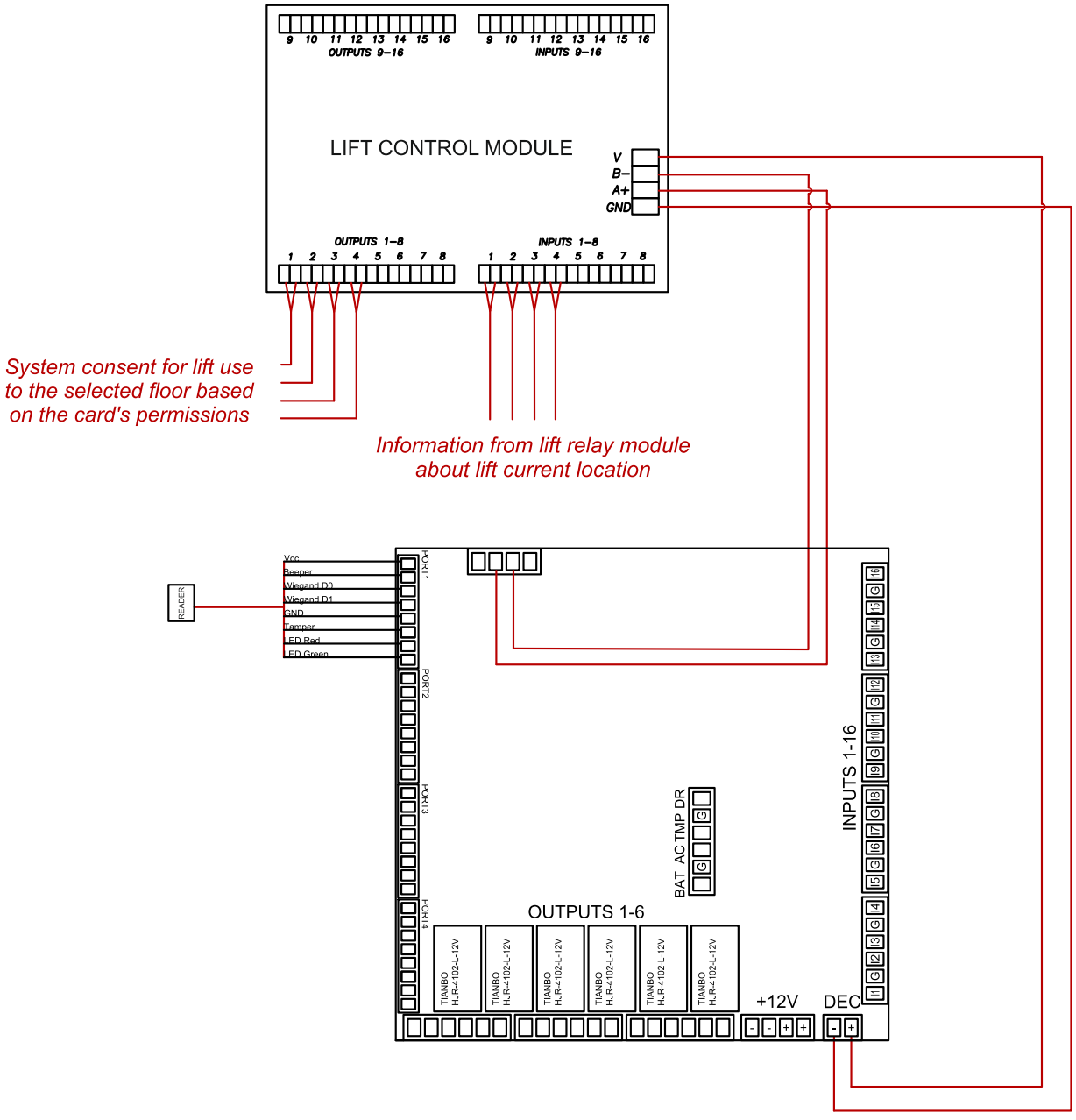
## 9.1 Single-leaf doors, one-sidedly monitored



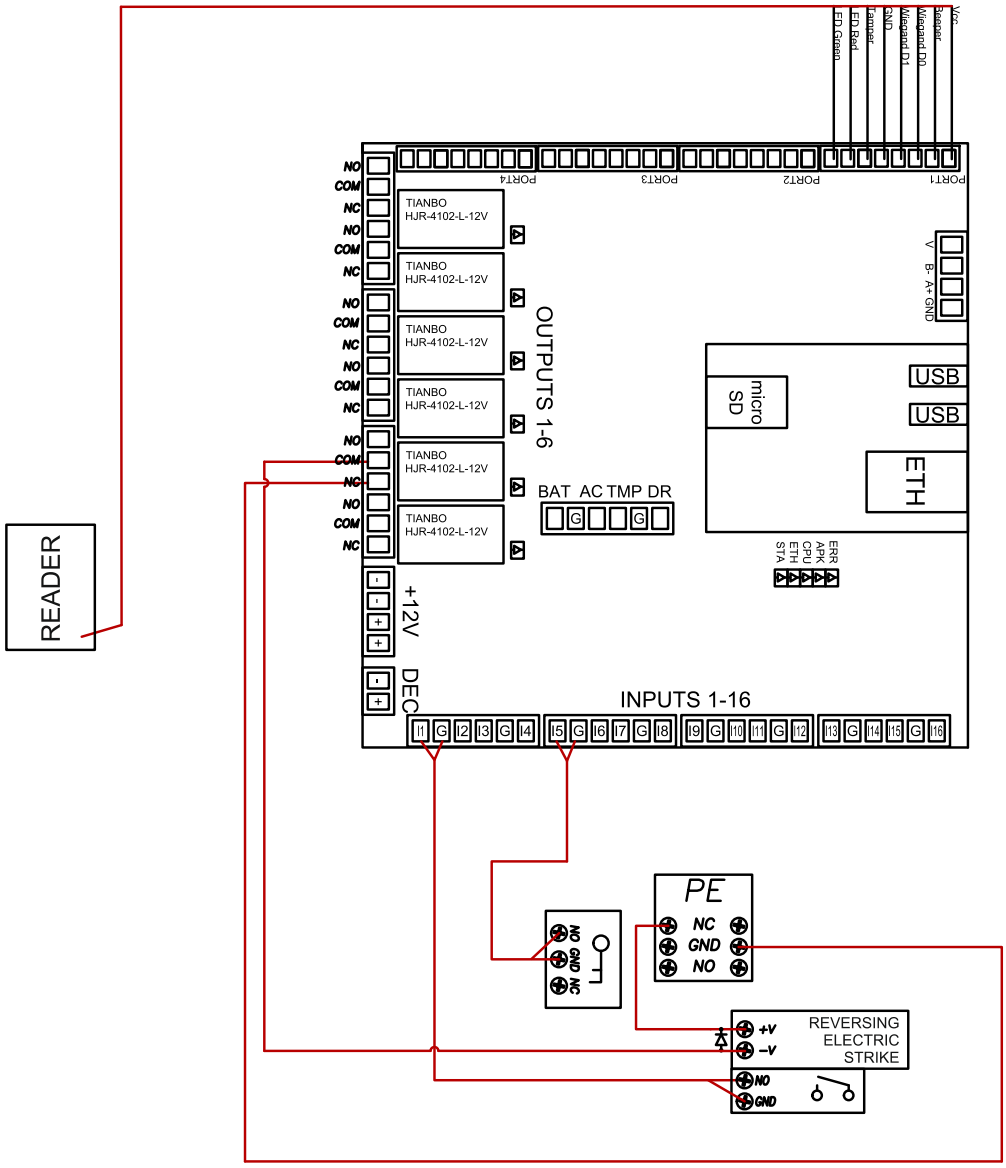
## 9.2 Double doors, both-sidedly monitored



## 9.3 Lift module connection

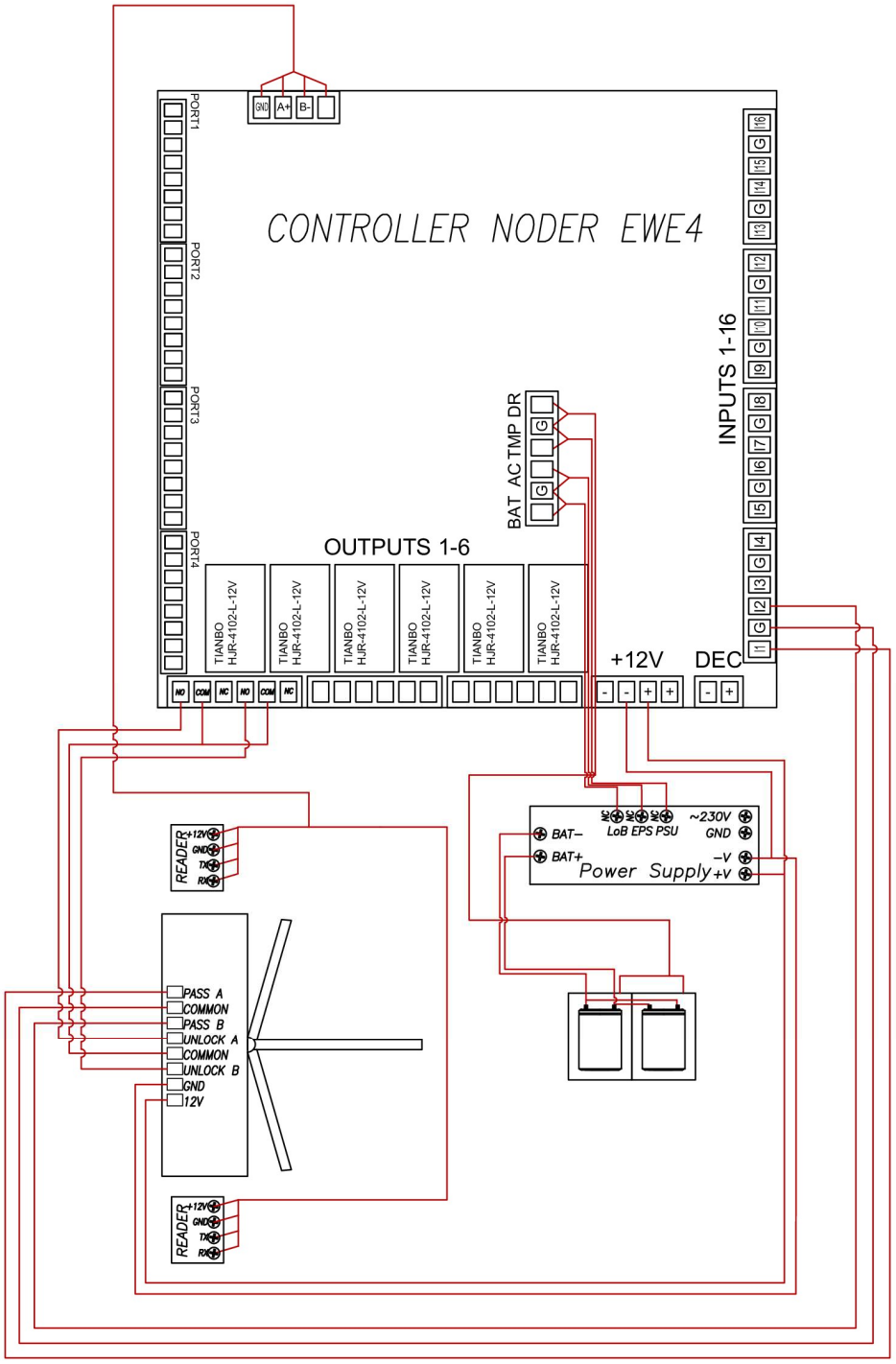


## 9.4 Emergency door opener connection



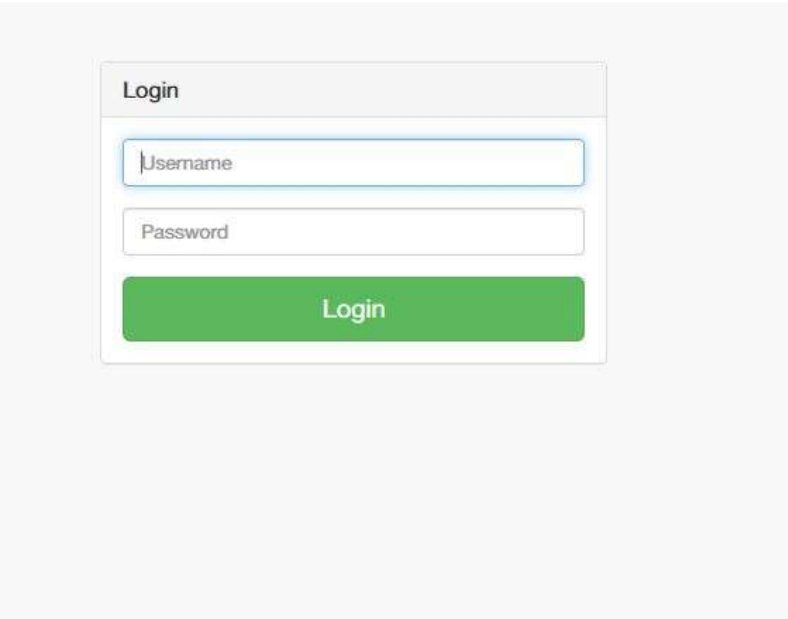

If it is necessary to use a collective button, connect the power supply of all jumpers to one fuse module and, similarly to the above, break the power supply of the whole module with the collective buton

## 9.5 Two-sided turnstile connection

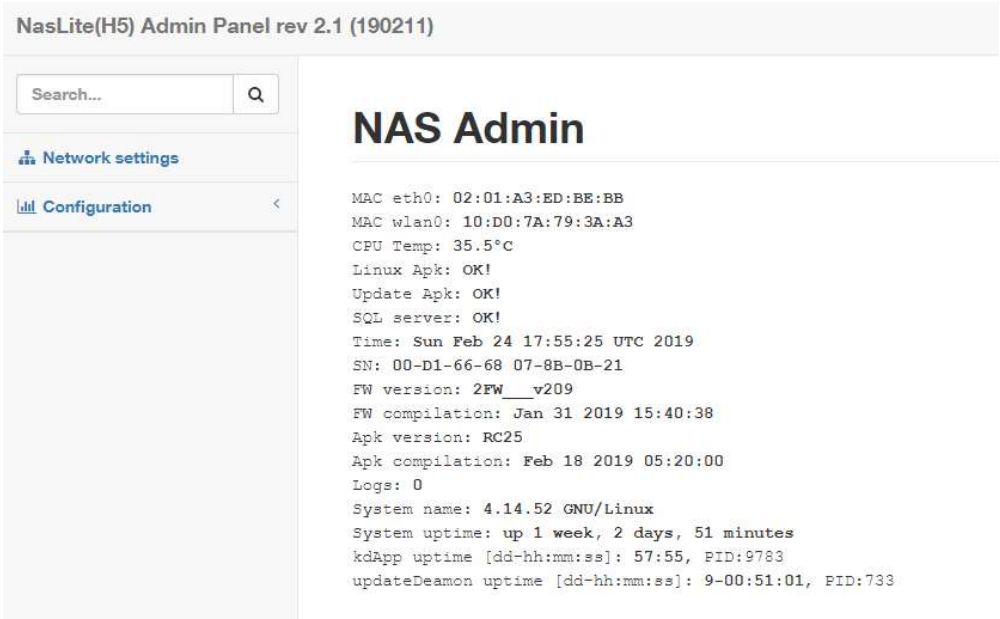


# 10. First start

The first time you start the controller, you must give it a unique IP address for your network. By default, the controllers are assigned the address 192.168.117.230 in the network with the mask 255.255.255.0 and the gate 192.168.117.1. You need to set up your computer in this network and then log in using the web browser.
*Default login:* ***admin***
*Default password:* ***123456***



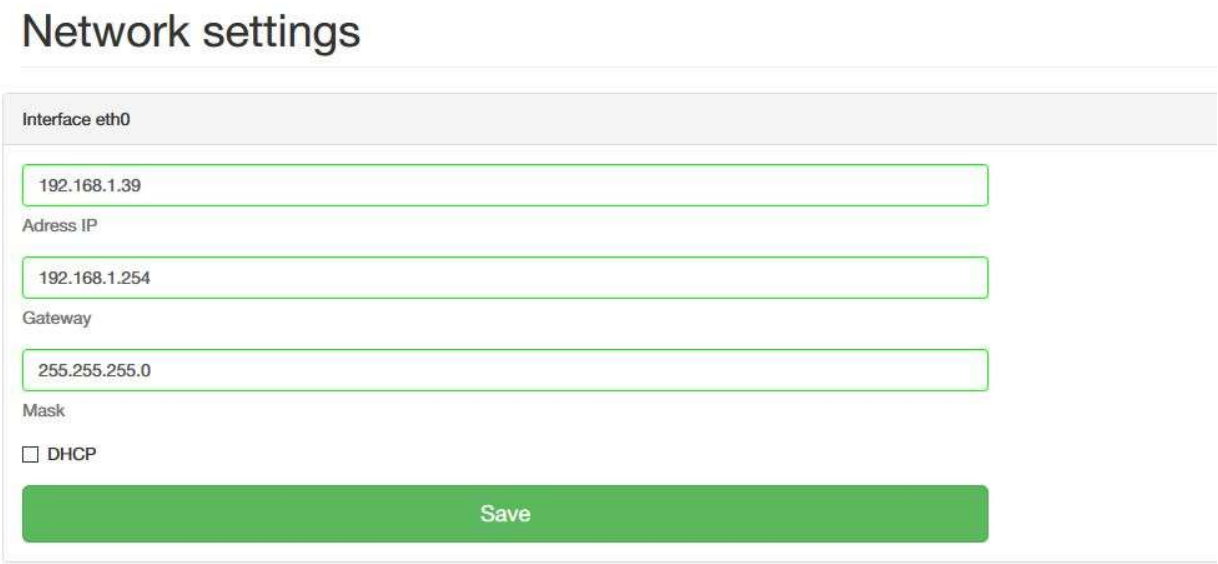

After logging in, an information page about current state of the controller will be displayed:




On the left side there are tabs for network settings options and configuration options.

## 10.1 Network settings

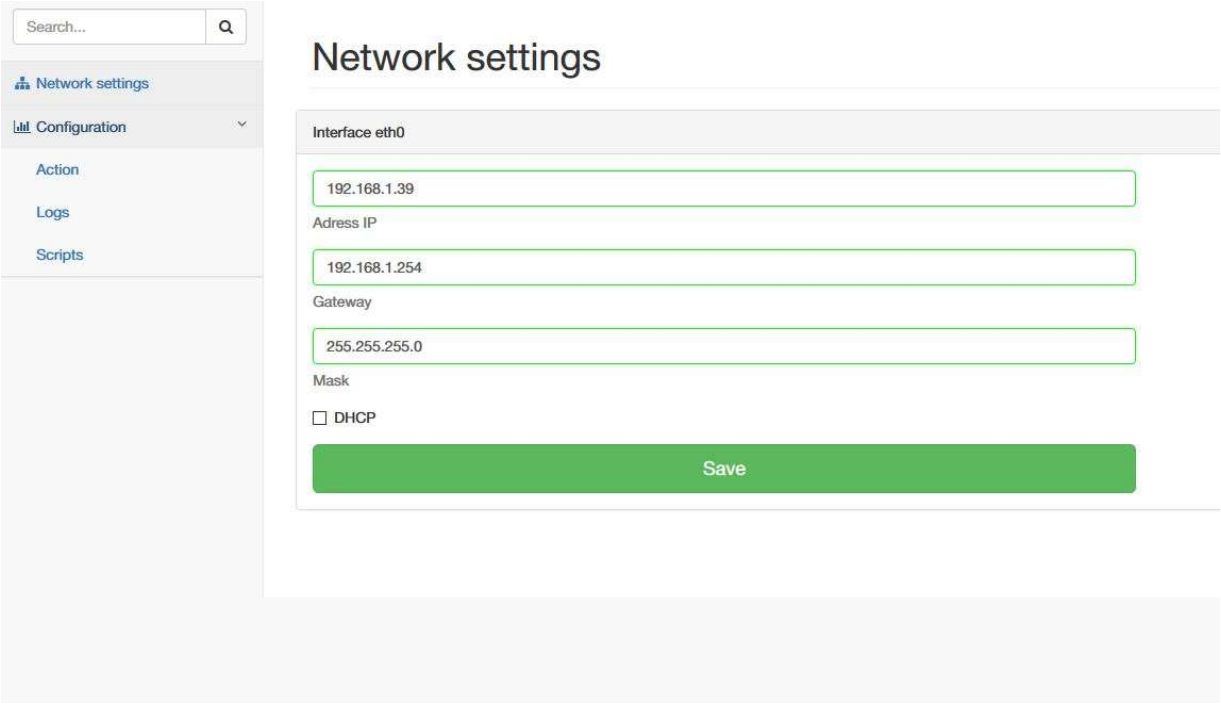
To change the address, select ***Network settings*** and then enter the new network settin




Controller should have a permanent IP address, if there is no security configuration on the network side to always give the same address to the device, the DHCP option should be deselected. If it is checked, the address setting options will be grayed out, and the address assignment option will be taken over by the DHCP controller. After setting the destination address, you need to change the computer's network settings and connect to the new controller's IP address.

# 11. Configuration options

Under the ***Configuration*** tab, additional tabs are available: ***Action, Logs and Scripts***

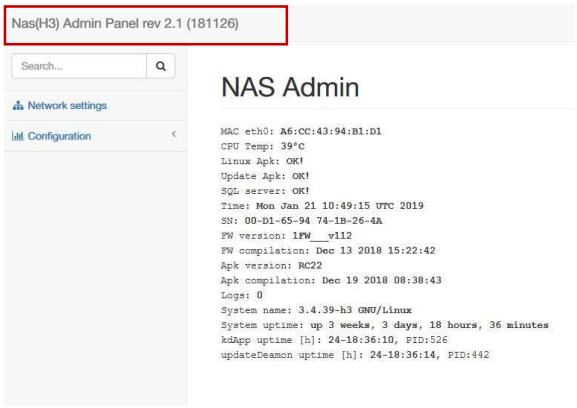



## 11.1 Action

The ***Action*** tab gives you the ability to restart device elements such as:

*OS restart* – operating system restart
*Apk restart* – controller application restart
*MB FW* – PIC microprocessor software update from the internal memory of the controller
*Load defaults* – return to the factory settings of the controller
*db Backup* – creating a copy of the internal security of the controller's database
*db Restore* – restoring the database from a backup copy saved to the internal memory

From the system reboot option, the application should be used in the absence of proper functioning of one of them. Information panel appears the first time you log in to the controller, it is also available by clicking on the name of the panel.



If there is a status other than ***OK*** in ***Linux Apk*** position, the application should be restarted first: ***Configuration – Action – Apk restart***

If in ***SQL server*** position status is other than ***OK*** or above did not solve the problem, you should restart the OS: ***Configuration – Action – OS restart***

# 12. LED informations on controller

The controller is equipped with diodes informing about the operating status of the device. LEDs:
**ERR**, red, lighting or blinking means that the hardware error of the device has been detected
**APK**, green, blinking means correct operation of the controller application
**CPU**, in the bootloader mode blinking alternately with the STA diode, means the bootloader mode
**ETH**, in the bootloader mode, receive the FW frame
**STA**, works together with the CPU as described above, and blinks when the microcontroller is working properly

# 13. Addressing RS readers

Readers connected to the RS485 bus must be addressed. Addressing of readers is carried out with programming cards available from the manufacturer. Cards are available in a set with addresses from 1 to 4. A maximum of 4 readers can be addressed on the bus port. If the RS reader with the address 1 is connected to the controller, the Wiegand port number 1 will be inactive, similarly for the other ports.
Reader is in a mode that allows addressing for 10 seconds after connecting it to the power supply. After applying the addressing card, the reader will reprogram and then reboot and indicate the green flash of the diode and sound its address one by one for the first address, twice for the second, etc. If the controller does not accept the address it will be signaled by a blink of the red diode.
Reader with an already assigned address immediately after connecting to the power supply will always signal its address with the sound and flash of the green diode.

# 14. Further configuration

After connecting all devices: readers, buttons, reed switches, power supplies and others and addressing the readers with special address cards, you should collect information about the devices and ports to which they are connected and go to device configuration in the Intellect platform.

Configuration of the device in the Intellect platform is described in the document:
***Instructions of Noder Access Control System administrator***