DAEnetIP4 SNMP Five Channel Relay Module

User's Manual
Date: 25 May 2021
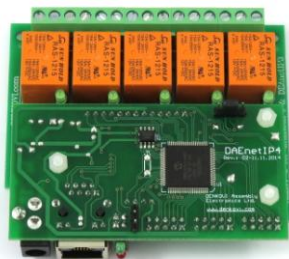
Content

1. About this document

This document describes only the specific features of the device Ethernet Five Relay Board with DAEnetIP4. This module consist of DAEnetIP4 controller and extension 5 channel relay board which is the main object of this document. For full description of the all **DAEnetIP4** features, you can refer to DAEnetIP4 user's manual.
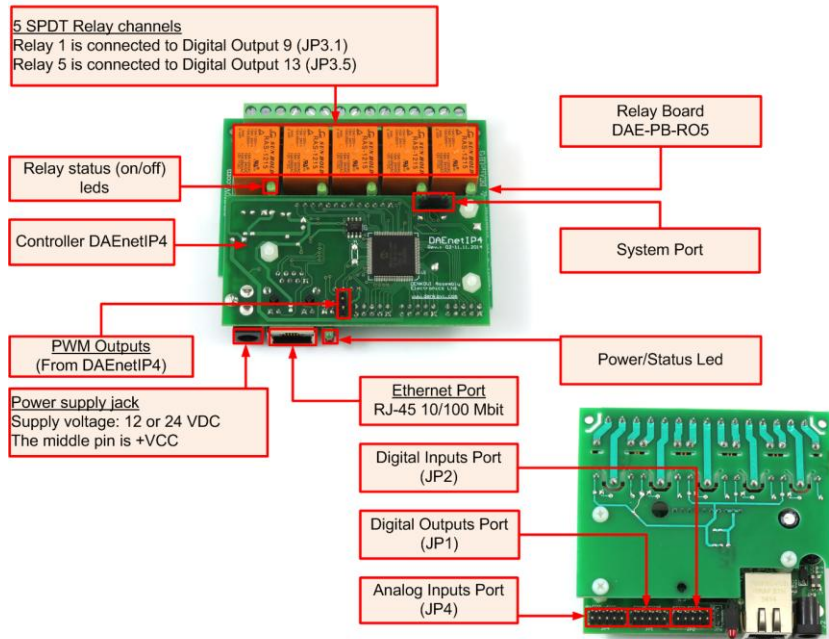
2. Overview

5 SPDT Relay channels
Relay 1 is connected to Digital Output 9 (JP3.1)
Relay 5 is connected to Digital Output 13 (JP3.5)

Relay status (on/off) leds

Controller DAEnetIP4

PWM Outputs (From DAEnetIP4)

Power supply jack
Supply voltage: 12 or 24 VDC
The middle pin is +VCC

Relay Board DAE-PB-RO5

System Port

Power/Status Led

Ethernet Port RJ-45 10/100 Mbit

Digital Inputs Port (JP2)

Digital Outputs Port (JP1)

Analog Inputs Port (JP4)

Figure 1. Module overview - PCB version

Ethernet Port
RJ-45 10/100 Mbit

Power/Status Led

Relay status (on/off) leds

Power supply jack
Supply voltage: 12 or 24 VDC
The middle pin is +VCC

5 SPDT Relay channels
Relay 1 is connected to Digital Output 9 (JP3.1)
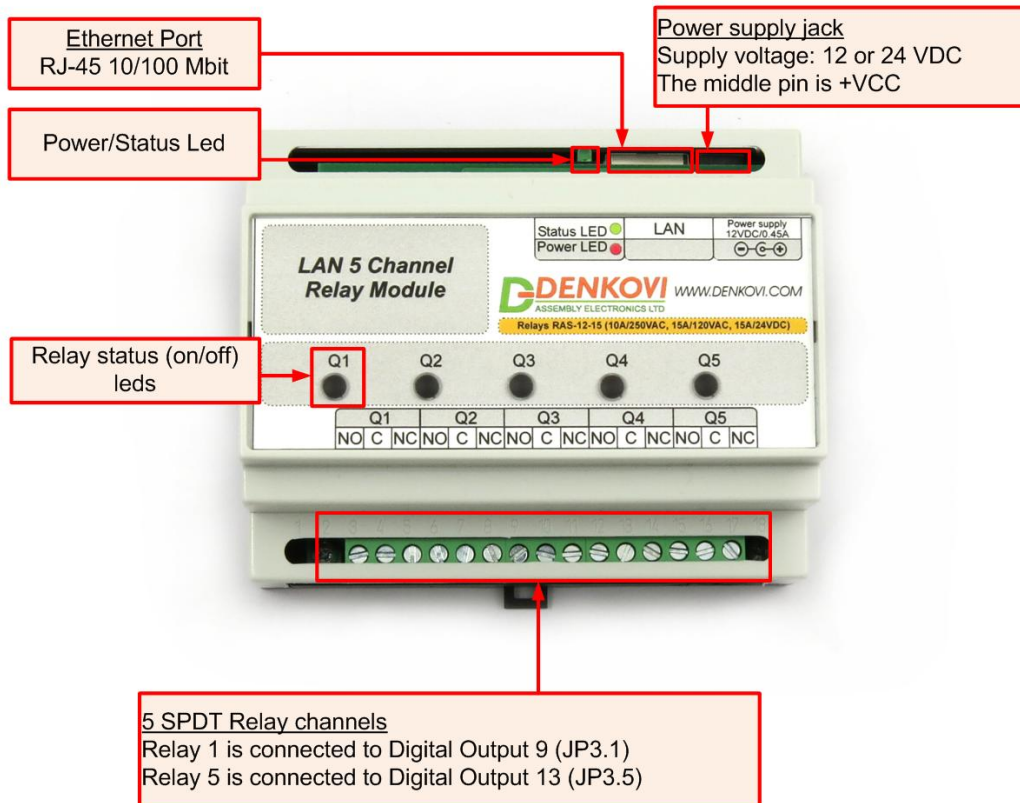Relay 5 is connected to Digital Output 13 (JP3.5)

Figure 2. Module overview - BOX version

Features:
- 5 x SPDT relays (NO,C,NC)-10A / 250VAC, 15A / 120VAC, 10A / 28VDC;
- 8 x digital outputs (coming from DAEnetIP4), accessible in PCB version only;
- 8 x digital inputs (coming from DAEnetIP4) , accessible in PCB version only;
- 8 x analog inputs (coming from DAEnetIP4) , accessible in PCB version only;
- 2 x PWM outputs (coming from DAEnetIP4) , accessible in PCB version only;
- Led indicators for: relays, power on

MPN reference (ordering codes):
- DAE-PB-RO5-12V+DAEnetIP4 (for 12V version, PCB only)
- DAE-PB-RO5-24V+DAEnetIP4 (for 24V version, PCB only)
- DAE-PB-RO5-12V+DAEnetIP4-BOX (for 12V version, BOX version)
- DAE-PB-RO5-24V+DAEnetIP4-BOX (for 24V version, BOX version)

3. Relay Outputs

The module provides 5 SPTD relays (NO, C, NC) and for every relay there is led indicator showing the relay state. When the led is ON, that means the relay is activated and when OFF, the relay is not activated.
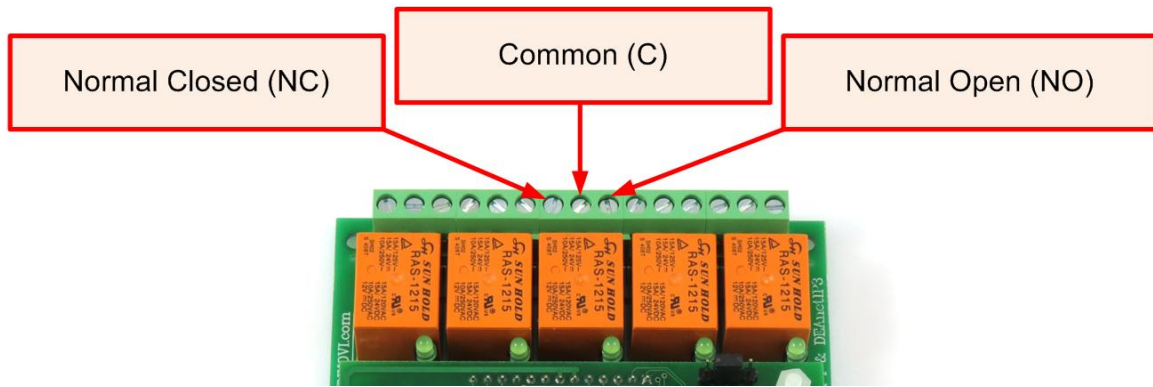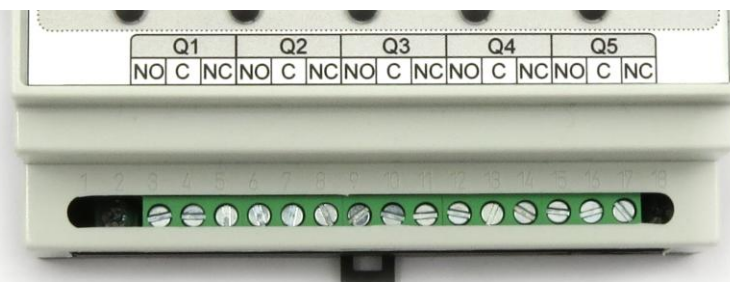

Figure 3. Location of the relays - PCB

Figure 4. Location of the relays - BOX

Table 1. Relays electrical characteristics

Relay outputs count		12
Contact type		NO, NC
Current consumption	mA	15
Switching parameters	A A A A	10 (28 VDC) 15 (120 VAC) 10 (250 VAC)

Table 2. Mapping to **DAEnetIP4** JP3 digital output port

Digital output pin # (DAEnetIP4 JP3)	Relay # (from peripheral board)
Digital Output #9 (JP3.1)	Relay 1
Digital Output #10 (JP3.2)	Relay 2
Digital Output #11 (JP3.3)	Relay 3
Digital Output #12 (JP3.4)	Relay 4
Digital Output #13 (JP3.4)	Relay 5

3.1. How to control the relays

3.1.1. Web browser

The relays states can be changed from the "Monitoring and Control" web page up on changing the dropdown combo-boxes (On/Off) in the section "Digital Outputs":

Monitoring & Control

Digital Outputs (1..8)							
-	-	-	-	-	-	-	-
On ▾	Off ▾	Off ▾	Off ▾	Off ▾	On ▾	On ▾	Off ▾

Digital Outputs (9..16)							
Relay1	Relay2	Relay3	Relay4	Relay5	-	-	-
Off ▾	Off ▾	Off ▾	Off ▾	Off ▾	Off ▾	Off ▾	Off ▾

Digital Inputs							
Din1	Din2	Din3	Din4	Din5	Din6	Din7	Din8
0 (Off)	0 (Off)	0 (Off)	0 (Off)	0 (Off)	0 (Off)	0 (Off)	0 (Off)
0	0	0	0	0	0	0	0

Analog Inputs							
Ain1	Ain2	Ain3	Ain4	Ain5	Ain6	Ain7	Ain8
800	763	646	669	818	966	724	337

Figure 5. Monitoring and Control web page - digital outputs control

3.1.2. Example SNMP commands

1. *SNMP GET COMMANDS*
Get Relay 1 State
snmpget -v1 -c read 192.168.1.100 .1.3.6.1.4.1.42505.1.2.3.1.11.8
DENKOVI-MIB::DigitalOutputState.8 = INTEGER: off(0)

Get Relay 5 State
snmpget -v1 -c read 192.168.1.100 .1.3.6.1.4.1.42505.1.2.3.1.11.12
DENKOVI-MIB::DigitalOutputState.12 = INTEGER: on(1)

Get all relays states with single command
snmpget -v1 -c read 192.168.1.100 .1.3.6.1.4.1.42505.1.3.2.0
DENKOVI-MIB::DigitalOutputsState.0 = INTEGER: 65535

2. *SNMP SET COMMANDS*

Set Relay 1 State OFF
snmpget -v1 -c read 192.168.1.100 .1.3.6.1.4.1.42505.1.2.3.1.11.8 i 0
DENKOVI-MIB::DigitalOutputState.8 = INTEGER: off(0)

Set Relay 12 State
snmpget -v1 -c read 192.168.1.100 .1.3.6.1.4.1.42505.1.2.3.1.11.12 i 1
DENKOVI-MIB::DigitalOutputState.12 = INTEGER: on(1)

Set all relays states with single command
snmpget -v1 -c read 192.168.1.100 .1.3.6.1.4.1.42505.1.3.2.0 i 65535
DENKOVI-MIB::DigitalOutputsState.0 = INTEGER: 65535

3.2. How to use the relays

3.2.1. Controlling lamp
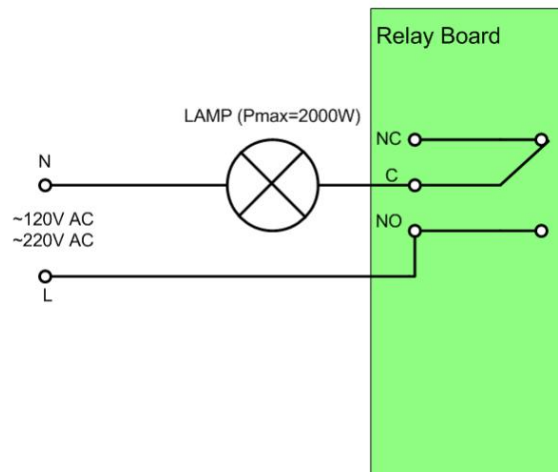
Figure 6. Controlling lamp

3.2.2. Controlling inductive load

You can read our article how to handle inductive loads for more information:
http://denkovi.com/controlling-inductive-devices

4. I/O Ports

Some of the I/O ports can be accessed easily directly from DAEnetIP4 - 8 x Digital Outputs (JP1), 8 x Digital Inputs (JP2), 8 x Analog Inputs (JP4) and 2 x PWM outputs(JP6). For more 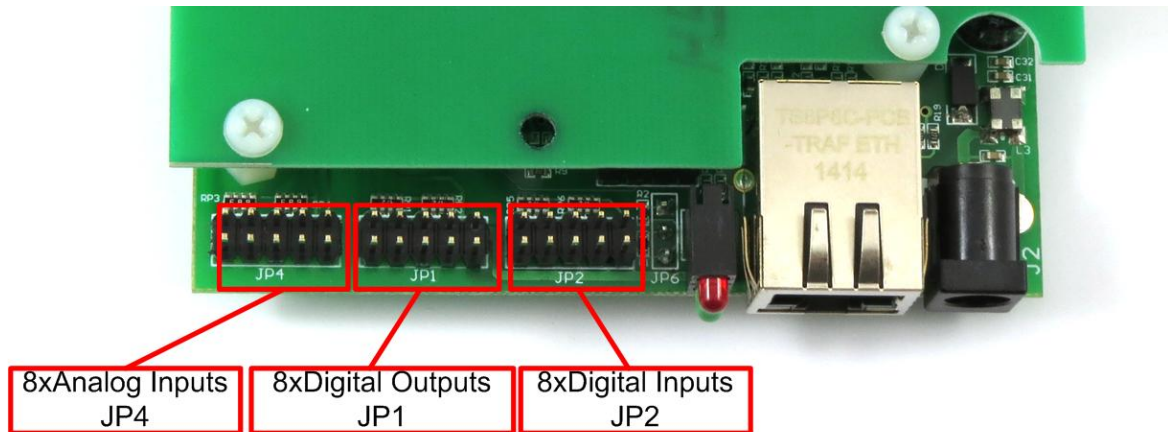infor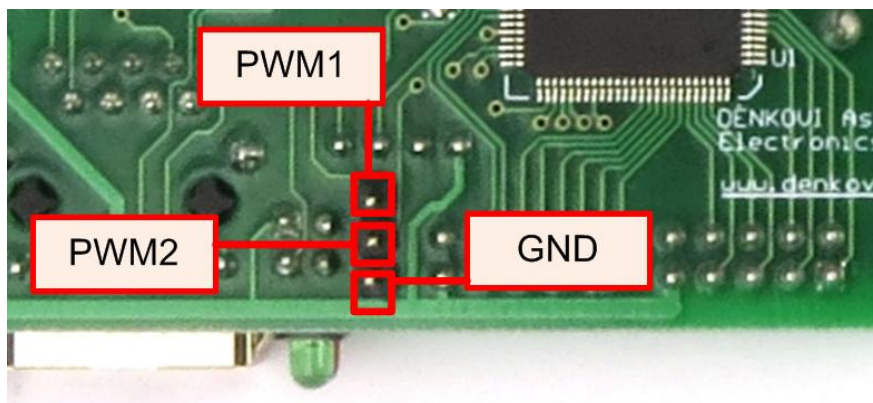mation please refer to the **DAEnetIP4** documentation: http://denkovi.com/Documents/DAEnetIP4/Current-Version/UserManual.pdf

Figure 7. Location of the I/O ports.

Figure 8. PWM outputs location

These I/O ports can be accessed only in case when PCB version!

5. Installation

5.1. Connect

- This device must be installed by qualified personnel;
- This device must not be installed directly outdoors;
- Installation consists of mounting the device, connecting to an IP network, connecting the I/O, providing power and configuring via a web browser.
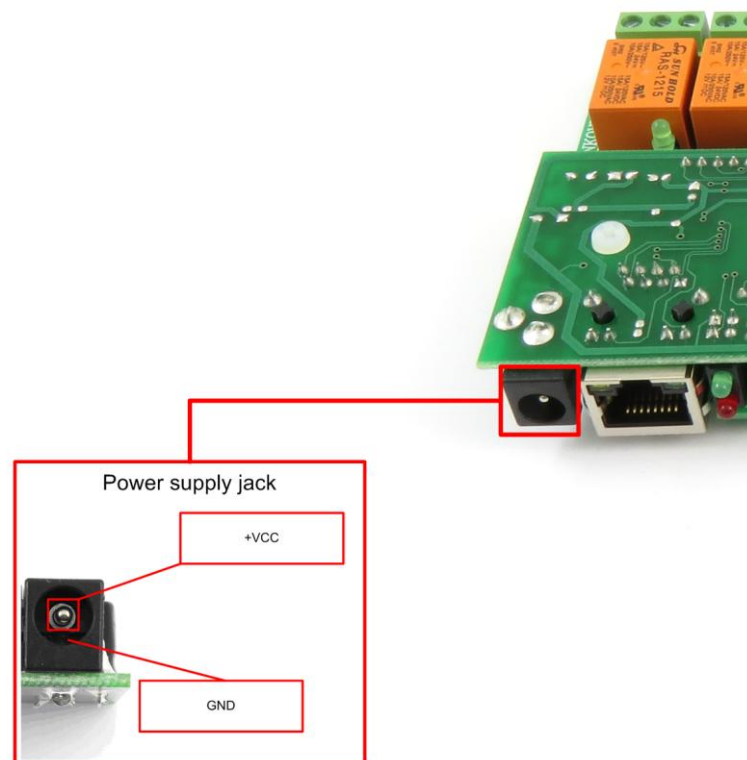
5.2. Power supply requirements

Figure 9. Location of **DAEnetIP4 Five Relay Module** power jack

The whole module has the following current consumption:
- **140mA** at 24V DC (and all relays are ON)
- **210mA** at 12V DC (and all relays are ON)

It is recommended the supply source for **DAEnetIP4 Five Relay Module** to be with the following parameters:
- Supply voltage: 12V or 24V DC (depending on the selected model);
- Current: minimum 210mA;
- It must be stabilized and filtered;

- Type: center positive (the inner pin of the power supply adaptor jack must be +VCC).

Figure 10. How the power supply cable must looks like

Additionally, you can check if the supply adaptor has this sign:
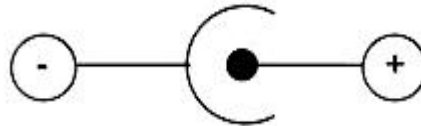

Figure 11. The power supply must be marked with this sign

⚠️ **DAEnetIP4 Five Relay Module** has protection against reverse polarity which is actually diode in parallel of the supply jack but it is still **not recommended** to reverse the voltage polarity!

⚠️ **DAEnetIP4 Five Relay Module** does not accept AC supply voltage. It is highly recommended to check the power supply source parameters before turning on the module.

⚠️ The power supply equipment shall be resistant to short circuit and overload in secondary circuit.

⚠️ When in use, do not place the equipment so that it is difficult to disconnect the device from the power supply.

5.3. Network connection

DAEnetIP4 Five Relay Module supports AUTO-MDIX so either "crossover" or "straight-through" network cable can be used.

Figure 12. UTP Cable

Figure 13. Connecting **DAEnetIP4 Five Relay Module** to a computer directly (recommended initial connection)

Figure 14. Connecting **DAEnetIP4 Five Relay Module** to a wireless router.

5.4. Communication setup

DAEnetIP4 is shipped with the following default parameters:

- IP address: **192.168.1.100**
- Subnet mask: **255.255.255.0**
- Gateway: **192.168.1.1**
- Web password: **admin**

Initially it is recommended to connect the module directly to the computer.

Next you have to change your PC's IP address.

💡 You can Google how to change you computer IP settings or just visit this web page: http://www.howtochangeipaddress.com/changeip.php

For Windows 7 OS for example you can do that in the following way:
Navigate to *Control Panel -> Network and Internet -> View network and status tasks -> Change adapter settings*

Then just select the local area connection with right click and select *Properties*:
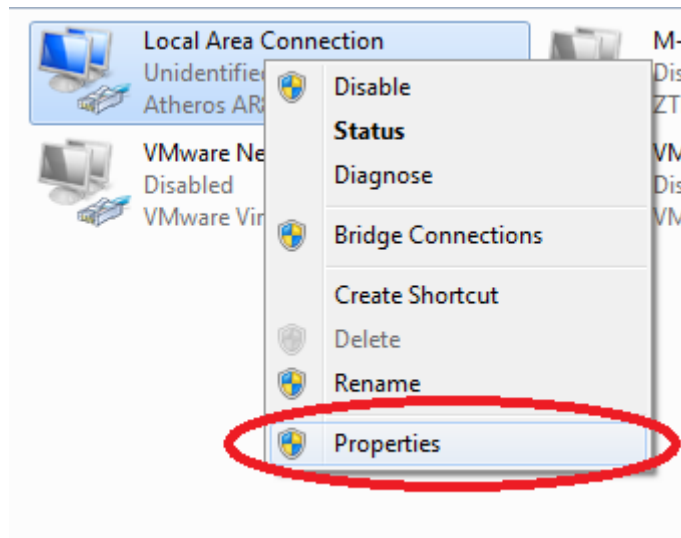
Figure 15. LAN card properties
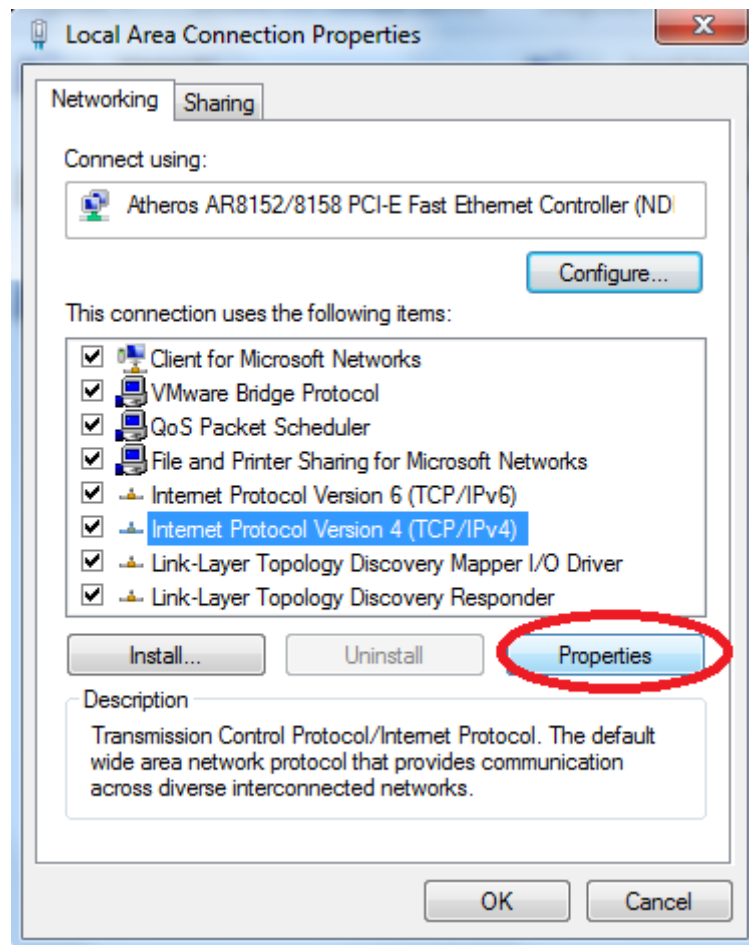
The next step is to enter into IPv4 properties.

Figure 16. Enter in IPv4 properties section

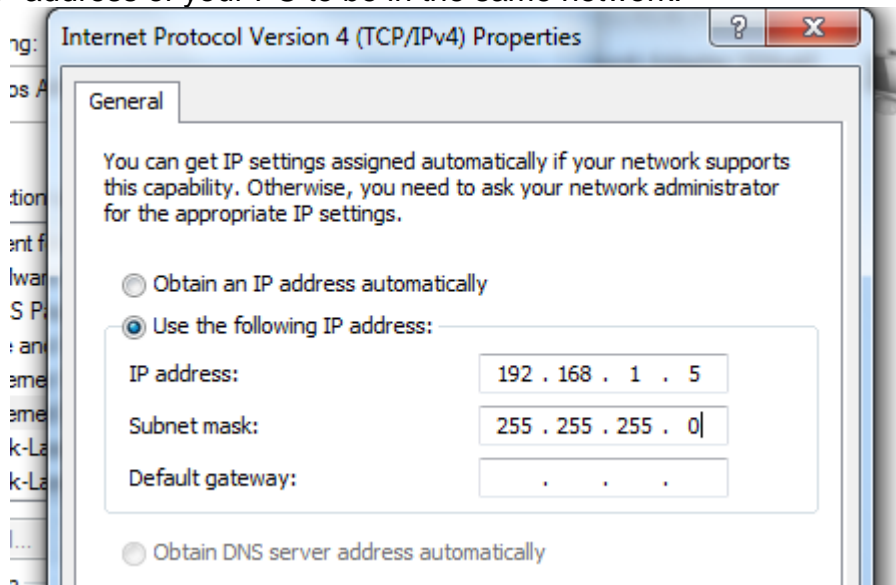Set the IP address of your PC to be in the same network.

Figure 17. Set the IP address

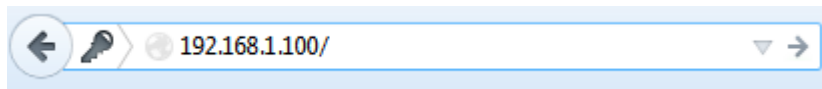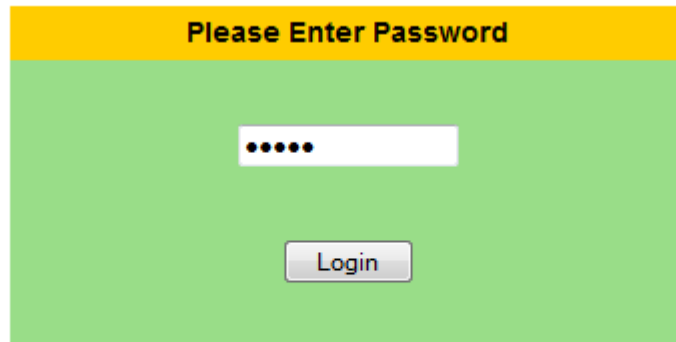Finally, in order to access **DAEnetIP4 Five Relay Module** just type in your browser 192.168.1.100

Figure 18. Open the device via browser

If the network settings are O'K, the log-in page should appear:

Figure 19. Login page

💡 **DAEnetIP4** modules connected locally can be easily scanned and found via the tool *Denkovi Finder* as well.
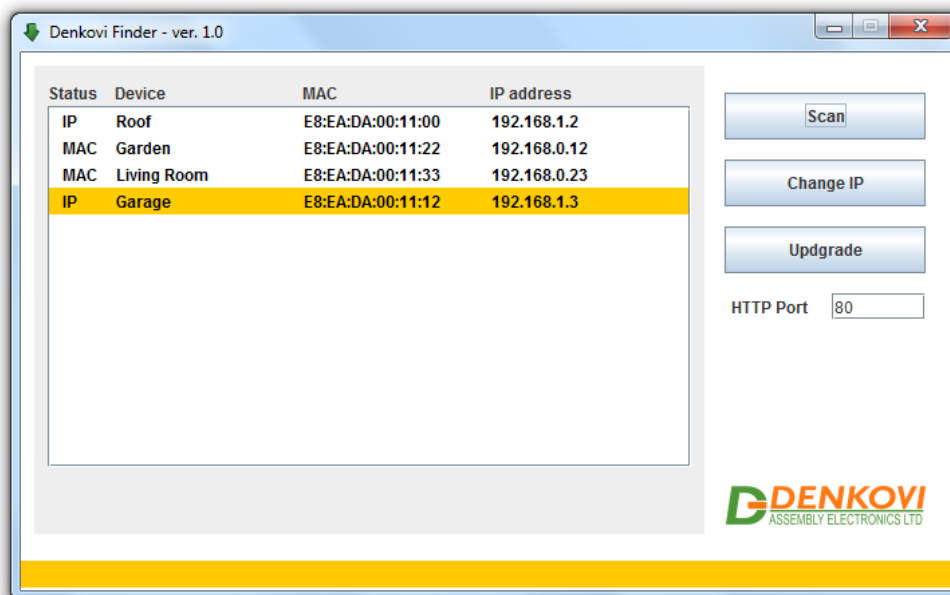

Figure 20. Denkovi Finder

6. Loading the default (factory) settings

When necessary, the factory (default settings) may be applied so the **DAEnetIP4** parameters will be loaded back.
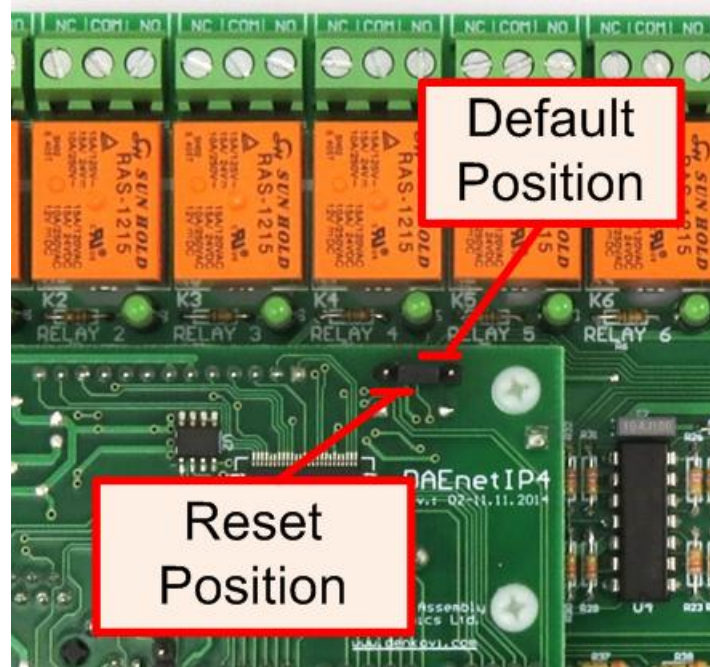

Figure 21. System port JP5

When **DAEnetIP4** is shipped from the factory, the jumper is placed on JP5 pins 2 and 3.

1. Turn off the power supply of the device;
2. Move the jumper to the **Default Position** (between pin 1 and 2);
3. Turn on the power supply of the device;
4. Wait until the status led become ON (approximately 10 sec);
5. Remove the jumper from the **Default Position**;
6. Turn off the power supply of the device;
7. Move back the jumper to the middle position (between pin 2 and 3);
8. The module is configured with default settings.

💡 In order to do this procedure in BOX version, you have to remove the top part of the housing before that!

7. Restart the module

The module may be restarted via one of the ways described bellow:

- Unplug the power supply, wait 10 seconds and plug it again;
- Move the jumper to **Reset Position** (Figure 21), wait 10 seconds and then get it back to it's old position. This option is most suitable when the controller is embedded in larger system and the JP5 jumper must be extended with buttons or switches.

💡 In order to do this procedure in BOX version, you have to remove the top part of the housing before that!