DAEnetIP3 TCP/IP Five Channel Relay Card

User's Manual
Date: 02 Nov 2017
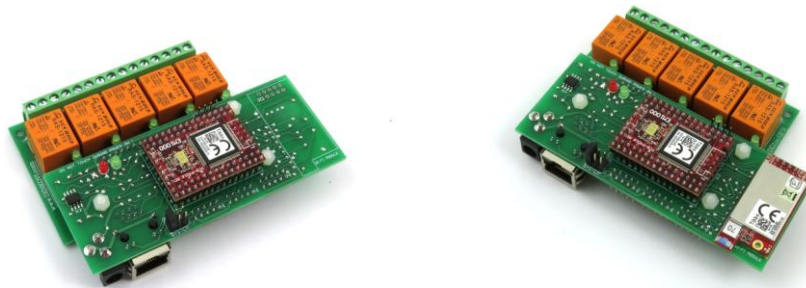
Content

1. About this document

This document describes only the specific features of the device Ethernet Five Relay Board with DAEnetIP3 and Wi-Fi Five Relay Board with DAEnetIP3. This module consist of DAEnetIP3-ET or DAEnetIP3-WT controller and extension 5 channel relay board which is the main object of this document. For full description of the all **DAEnetIP3** features, you can refer to DAEnetIP3 user's manual.

2. Overview
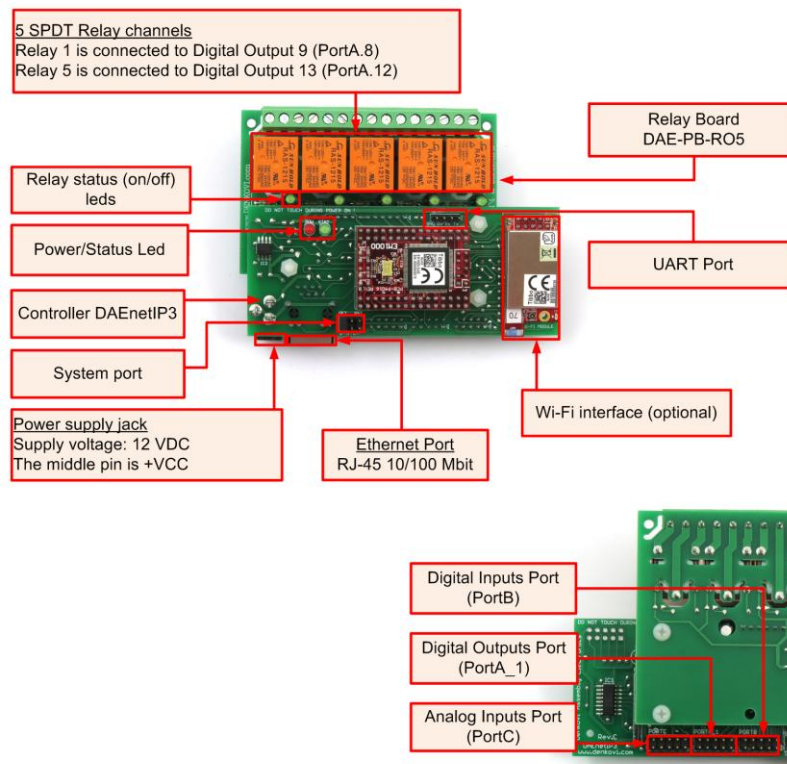
Figure 1. Overview

Features:
- 12 x SPDT relays (NO,C,NC) - 10A / 250VAC, 15A / 120VAC, 10A / 28VDC;
- 8 x digital outputs (coming from DAEnetIP3)
- 8 x digital inputs (coming from DAEnetIP3)
- 8 x analog inputs (coming from DAEnetIP3)
- 1 x UART (coming from DAEnetIP3)
- Led indicators for: relays, power on

MPN reference (ordering codes):
- DAE-PB-RO5-12V+DAEnetIP3-ET:12V relays, Ethernet version;
- DAE-PB-RO5-24V+DAEnetIP3-ET:24V relays, Ethernet version;
- DAE-PB-RO5-12V+DAEnetIP3-WT:12V relays, Wi-Fi version;
- DAE-PB-RO5-24V+DAEnetIP3-WT:24V relays, Wi-Fi 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.
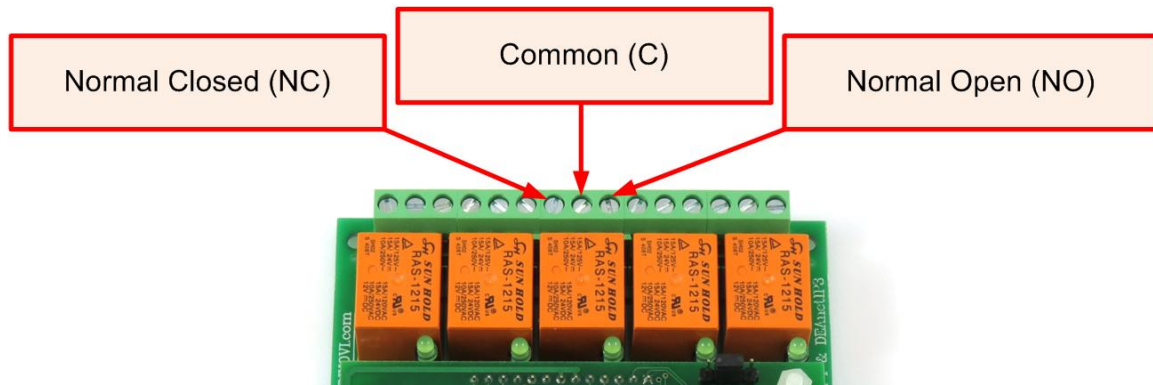

Figure 2. Location of the relays

Table 1. Relays electrical characteristics

Relay outputs count		5
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 **DAEnetIP3** JP3 digital output port

Digital output pin # (DAEnetIP3 PortA_2)	Relay # (from peripheral board)
Digital Output #9 (PortA.8)	Relay 1
Digital Output #10 (PortA.9)	Relay 2
Digital Output #11 (PortA.10)	Relay 3
Digital Output #12 (PortA.11)	Relay 4
Digital Output #13 (PortA.12)	Relay 5

3.1. How to control the relays

3.1.1. Web browser

The relays states can be changed from the "Digital Outputs" web page up on changing the checkboxes from the "Control" column.

Pin#	Status	Control	Mode	ON / OFF / Delay / Resolution				Time1/Time2		Description
0	0	☐	On/Off ▾	1	/1	/5	/ sec ▾	00:00:00	/ 00:01:00	---
1	0	☐	Timer & DI ▾	1	/1	/5	/ sec ▾	00:00:00	/ 00:01:00	---
2	1	☐	On/Off ▾	1	/1	/5	/ sec ▾	00:00:00	/ 00:01:00	---
3	0	☐	On/Off ▾	1	/1	/5	/ sec ▾	00:00:00	/ 00:01:00	---
4	0	☐	On/Off ▾	1	/1	/5	/ sec ▾	00:00:00	/ 00:01:00	---
5	0	☐	On/Off ▾	1	/1	/5	/ sec ▾	00:00:00	/ 00:01:00	---
6	0	☐	On/Off ▾	1	/1	/5	/ sec ▾	00:00:00	/ 00:01:00	---
7	0	☐	On/Off ▾	1	/1	/5	/ sec ▾	00:00:00	/ 00:01:00	---
8	0	☐	On/Off ▾	1	/1	/5	/ sec ▾	00:00:00	/ 00:01:00	Relay1
9	0	☑	On/Off ▾	1	/1	/5	/ sec ▾	00:00:00	/ 00:01:00	Relay2
10	1	☑	On/Off ▾	1	/1	/5	/ sec ▾	00:00:00	/ 00:01:00	Relay3
11	1	☑	On/Off ▾	1	/1	/5	/ sec ▾	00:00:00	/ 00:01:00	Relay4
12	0	☑	On/Off ▾	1	/1	/5	/ sec ▾	00:00:00	/ 00:01:00	Relay5
13	0	☐	On/Off ▾	1	/1	/5	/ sec ▾	00:00:00	/ 00:01:00	---
14	0	☐	On/Off ▾	1	/1	/5	/ sec ▾	00:00:00	/ 00:01:00	---
15	0	☐	On/Off ▾	1	/1	/5	/ sec ▾	00:00:00	/ 00:01:00	---

Port A - 16 channel digital output port

Save settings

Set Digital Outputs

Figure 3. Digital Output web page - digital outputs control

3.1.2. Example HTTP commands

Get all relays states
http://192.168.0.100/Command.html?P=admin&AS8=?&AS9=?&ASA=?&ASB=?&ASC=?&

Set all relays ON at a time
http://192.168.0.100/Command.html?P=admin&AS8=1&AS9=1&ASA=1&ASB=1&ASC=1&

Get Relay 1 State
http://192.168.0.100/Command.html?P=admin&AS8=?&

Get Relay 5 State
http://192.168.0.100/Command.html?P=admin&ASC=?&

Set Relay 2 OFF
http://192.168.0.100/Command.html?P=admin&AS9=0&

Set Relay 5 OFF
http://192.168.0.100/Command.html?P=admin&ASC=0&

3.1.3. TCP/IP (Virtual Serial Port)

Get all relays states
00ASG=?;

Set all relays ON at a time
00ASG=FFFF;

Get Relay 1 State
00AS8=?;

Get Relay 5 State
00ASC=?;

Set Relay 2 OFF
00AS9=0;

Set Relay 5 OFF
00ASC=0;

3.1.4. Serial commands

Get all relays states
00ASG=?;

Set all relays ON at a time
00ASG=FFFF;

Get Relay 1 State
00AS8=?;

Get Relay 5 State
00ASC=?;

Set Relay 2 OFF
00AS9=0;

Set Relay 5 OFF
00ASC=0;

3.1.5. Telnet

Get all relays states
00ASG=?;

Set all relays ON at a time
00ASG=FFFF;

Get Relay 1 State
00AS8=?;

Get Relay 5 State
00ASC=?;

Set Relay 2 OFF
00AS9=0;

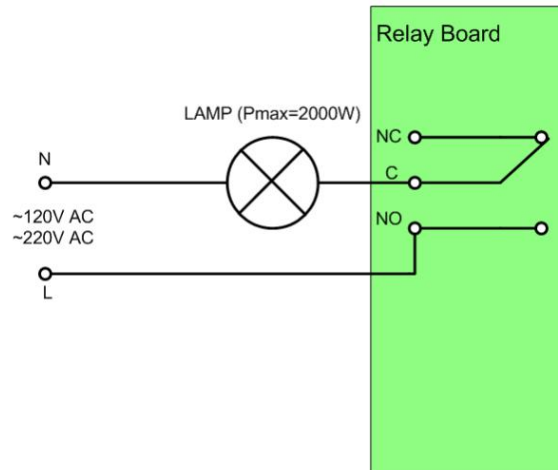## 3.2. How to use the relays

3.2.1. Controlling lamp

Figure 4. 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 **DAEnetIP3** - 8 x Digital Outputs (PortA_1), 8 x Digital Inputs (PortB), 8 x Analog Inputs (PortC). For more information please refer to the **DAEnetIP3** documentation:

http://www.denkovi.com/Documents/DAEnetIP3/Current-Version/DAEnetIP3_UM.pdf
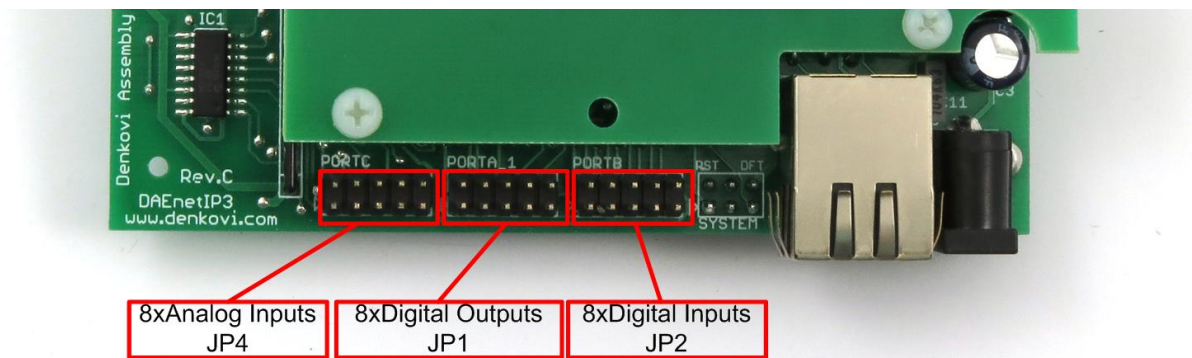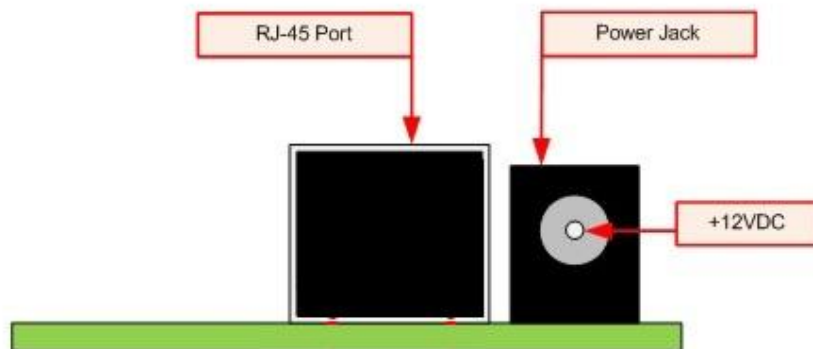

Figure 5. Location of the I/O ports.

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 6. Location of **DAEnetIP3 Five Relay Module** power jack

The whole module has the following current consumption:
- **110mA** at 12V DC (and all relays are OFF)
- **280mA** at 12V DC (and all relays are ON)

It is recommended the supply source for **DAEnetIP3 Five Relay Module** to be with the following parameters:
- Supply voltage: 12V DC / 24VDC;
- Current: minimum 280mA / 12VDC;
- Current: minimum 200mA / 24VDC;
- It must be stabilized and filtered;
- Type: center positive (the inner pin of the power supply adaptor jack must be +VCC).

Figure 7. How the power supply cable must looks like

Additionally, you can check if the supply adaptor has this sign:
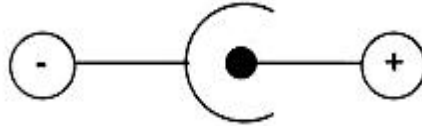
Figure 8. The power supply must be marked with this sign

⚠ **DAEnetIP3 Five Relay Module** does not has protection against reverse polarity which and it is **not recommended** to reverse the voltage polarity as this will case damage!

⚠ **DAEnetIP3 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

DAEnetIP3 Five Relay Module supports AUTO-MDIX so either "crossover" or "straight-through" network cable can be used.

Figure 9. UTP Cable

Figure 10. Connecting **DAEnetIP3 Five Relay Module** to a computer directly (recommended initial connection)

Figure 11. Connecting **DAEnetIP3 Five Relay Module** to a wireless router.

5.4. Communication setup

DAEnetIP3 is shipped with the following default parameters:

- IP address: **192.168.0.100**
- Subnet mask: **255.255.255.0**
- Gateway: **192.168.0.1**
- 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
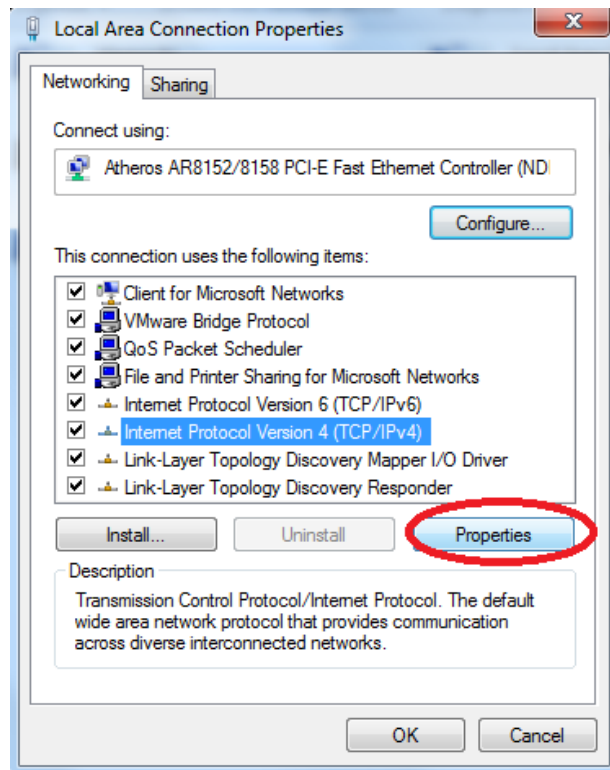
For Windows 7 OS for example you can do that in the following way:
Navigate to *Control Panel -> Network and Internet -> View network and status tasks -> Change adapter settings*

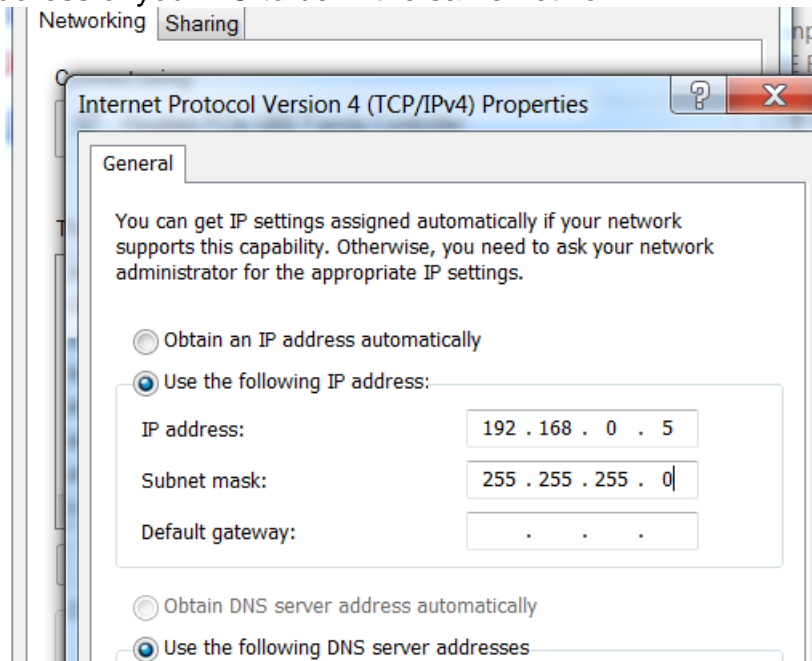Then just select the local area connection with right click and select *Properties*:
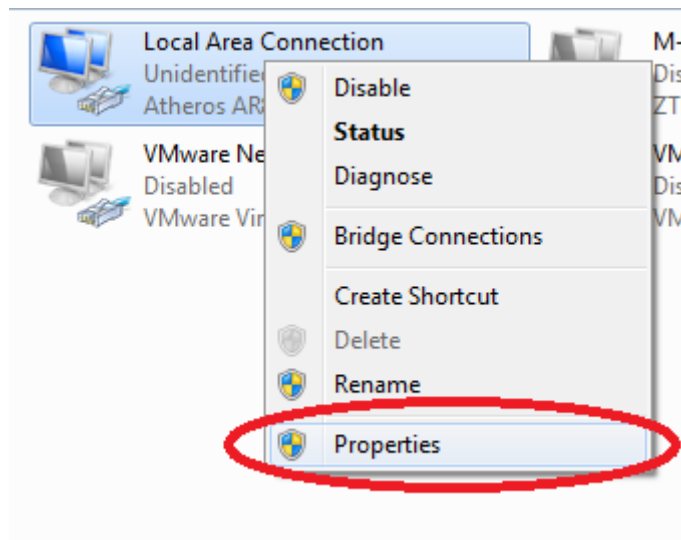
Figure 12. LAN card properties
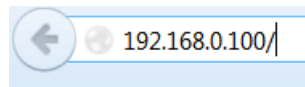
The next step is to enter into IPv4 properties.

Figure 13. Enter in IPv4 properties section

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

Figure 14. Set the IP address

Finally, in order to access **DAEnetIP3 Five Relay Module** just type in your browser 192.168.0.100

Figure 15. Open the device via browser

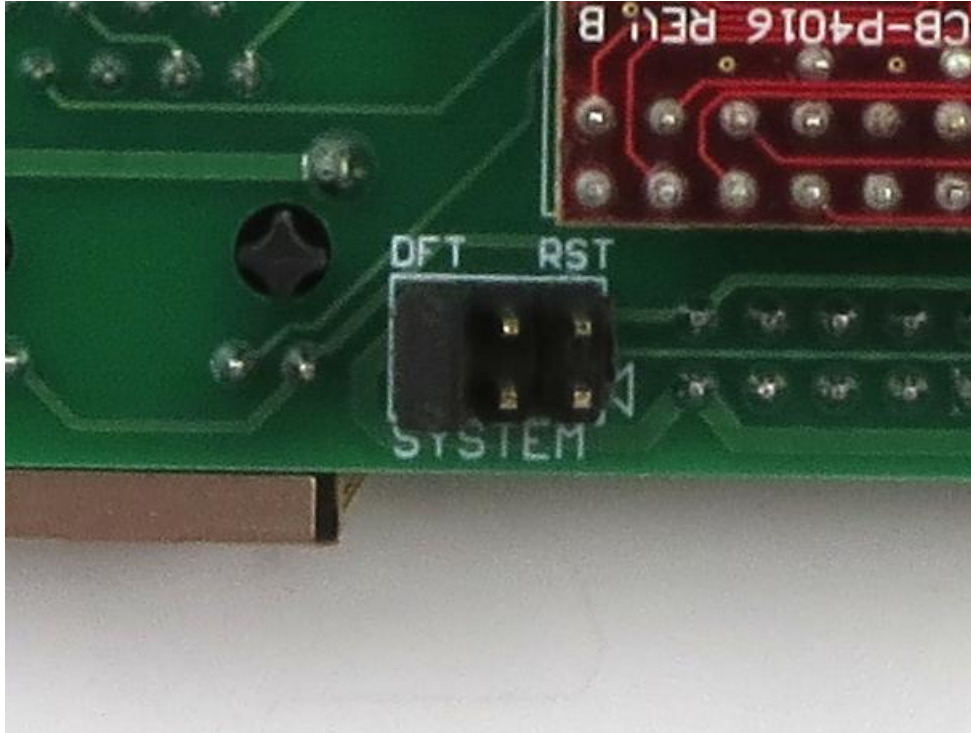If the network settings are O'K, the log-in page should appear:

Figure 16. Login page

6. Loading the default (factory) settings

When necessary, the factory (default settings) may be applied so the **DAEnetIP3** parameters will be loaded back.

Figure 17. System port

When **DAEnetIP3** is shipped from the factory, the jumper is placed on DFT position.

1. Turn off the power supply of the IP controller
2. Remove the jumper for default settings
3. Turn on the power supply of the IP controller
4. Wait 20 seconds
5. Turn off the power supply
6. Put the jumper again on the position shown on the figure above
7. Turn on the power supply