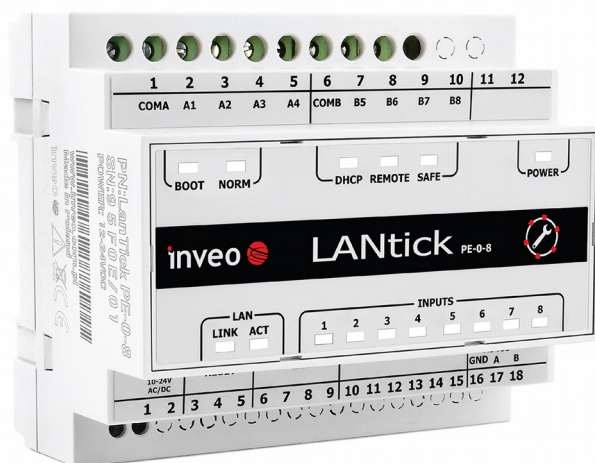


User manual LanTickPro

**PE-1-0, PE-0-1, PE-1-1, PE-2-2, PE-4-4, PE-8-0, PE-0-8,
PE-0-16, PE-16-0**



Soft >= 4.14

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Dear Customer!

Thank you very much for choosing our product. Before its use, please read these instructions carefully. Here you find the most appropriate ways of dealing with this device, the basic principles of safety and maintenance. Please, also keep the user manual so that you can read it during later use.

Attention!

The manufacturer is not liable for any damage caused by improper use of the device which differ from its intended purpose, or improper handling, as well as a fault of driver resulting from improper use.

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1 Preliminary information

Before starting work with the device, read The User manual and follow the instructions contained therein!

Description of visual symbols used in this user manual:



This symbol is responsible for reviewing the appropriate place in the user instructions, warnings and important information. Failure to follow warnings could cause injury or damage to the device



Important information and guidelines



Following this guidelines makes the use of the device easier

Attention: The screenshots in this manual can be dissimilar from actual images at the time of the device purchase. Due to continuous development of the devices software, some of the functions may differ from these in the manual. The manufacturer claims no responsibility for any undesirable effects (misunderstanding) caused by changes of the software.

2 Application of the device

The LantickPro controller device, depending on version, is used to control electrical circuit using outputs (relay outputs or High-Side Power Switch) and as a digital input module (dry or wet contact). The inputs can operate in pulse counting mode. Reading inputs status and setting outputs is available via LAN (communication protocols).

3 Warranty and liability of the manufacturer



The manufacturer provides a 2-year warranty on the device. The manufacturer also provides post-warranty service for 10 years from the date of the introducing the device on the market. The warranty covers all defects in material and workmanship.

The manufacturer undertakes to comply with the contract of guarantee, if the following conditions are met:

- all repairs, alterations, extensions and device calibrations are performed by the manufacturer or authorized service,
- supply network installation meets applicable standards in this regard,
- the device is operated in accordance with the recommendations outlined in this manual,
- the device is used as intended.

The manufacturer assumes no responsibility for consequences resulting from improper installation, improper use of the device, not following this manual and the repairs of the device by individuals without permission.



This device doesn't contain serviceable parts.

4 Safety guidelines

The device has been designed and built using modern electronic components, according to the latest trends in the global electronics. In particular, much emphasis was placed on ensuring optimum safety and reliability of control. The device has a housing with a high-quality plastic.

4.1 Storage, work and transport conditions

The device has to be stored in enclosed rooms which are free of caustic vapors and substances and also meet the requirements:

- surrounding temperature from -30°C to $+60^{\circ}\text{C}$,
- humidity from 25 to 90%,
- atmospheric pressure from 700 to 1060hPa.


The device working conditions:

- surrounding temperature from -10°C to $+55^{\circ}\text{C}$,
- relative humidity from 30% to 75%,
- atmospheric pressure from 700 to 1060hPa.

Recommended transport conditions:

- surrounding temperature from -40°C to $+85^{\circ}\text{C}$,
- relative humidity from 5% to 95%,
- atmospheric pressure from 700 to 1060hPa.

4.2 Installation and use of the device

 **The device should be used following the guidelines shown in next part of the user manual.**

4.3 Decommissioning of the device

When it becomes necessary to recycle the device (for instance, to decommission the device from service), please contact the manufacturer or its representative, who are obliged to respond, appropriately, i.e. collecting the device from the user. You can also ask the companies involved in recycling of electrical or computer equipment. Under no circumstances should you place the device along with other waste material.

5 Construction of the device

5.1 Lantick PE-0-1, PE-1-0

Technical data:

Power supply:

Passive PoE 12-24VDC via PoE adapter

Power consumption: max 1,5W

Output (Lantick PE-1-0):

Output type: a relay,

Maximum working voltage: 30V DC,

Maximum relays current load: 1A,

Output NO (normally open),

Switch on time: 1ms,

Switch off time: 5ms,

Work modes: bistable, astable, mono stable (one shot),

Time between switching on and off: 100ms.

Input (Lantick PE-0-1):

Input type: dry contact (applying voltage results in damage to the module), NO

Maximum counter value: 4 294 967 296

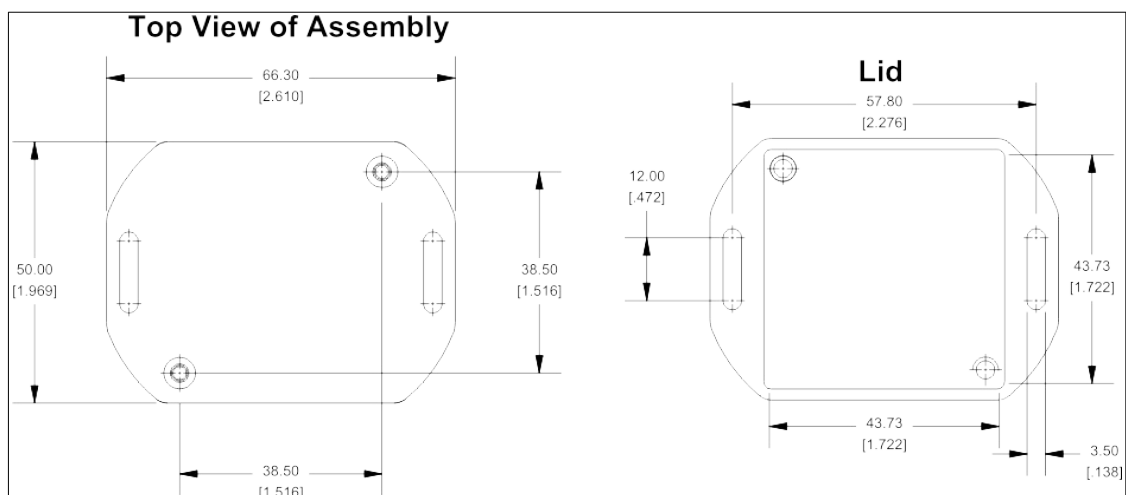
Maximum input frequency: 1000Hz

LAN:

Ethernet 1×10Mbps, RJ45

Dimensions:

All dimension values are in millimeters.



General view:



General features:

General description				
Version	Number of outputs	Output type	Number of inputs	Input type
PE-1-0	1	relay NO	0	N/A
PE-0-1	0	N/A	1	dry contact NO

Indicators:

The controller device has been fitted with LED diodes which show current status of:

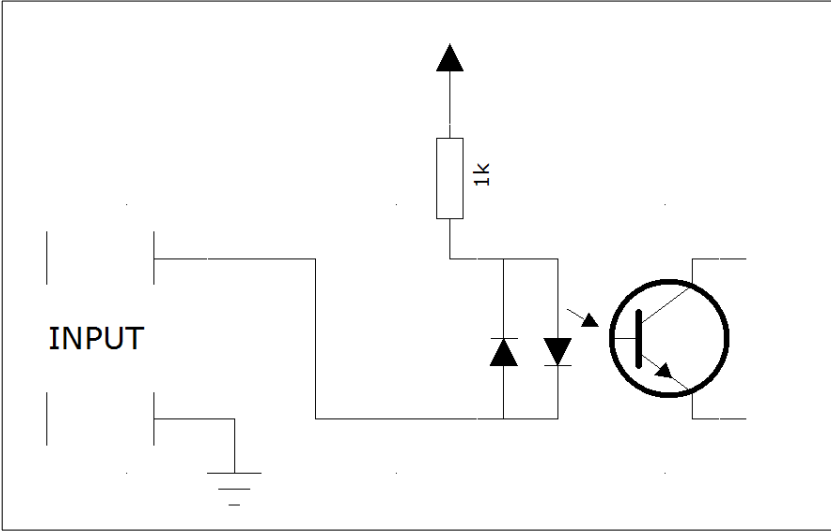
The device PE-1-0, PE-0-1	
Name of the indicator	Description
POWER	The device power supply status
OUTPUT/INPUT	Output or input current status



LED diodes of PE-1-0

Inputs:

Circuit diagram of a binary input is shown below:



The diagram shows opto-isolated NO (Normally open) input.

5.2 Lantick PE-1-1

Technical specification:

Power supply:

10-24VDC (screw terminal 3,5mm) or PoE802.3af 48VDC

Power consumption: 1,5 – 2W

Output:

Output type: a relay,

Maximum working voltage: 30V DC,

Maximum relays current load: 1A,

Output NO (normally open)

Switch on time: 1ms,

Switch off time: 5ms,

Work modes: bistable, astable, mono stable (one shot),

Time between switching on and off: 100ms,

Screw terminals for output circuits.

Input:

Input type: dry contact (applying voltage results in damage to the module), NO

Maximum counter value: 4 294 967 296

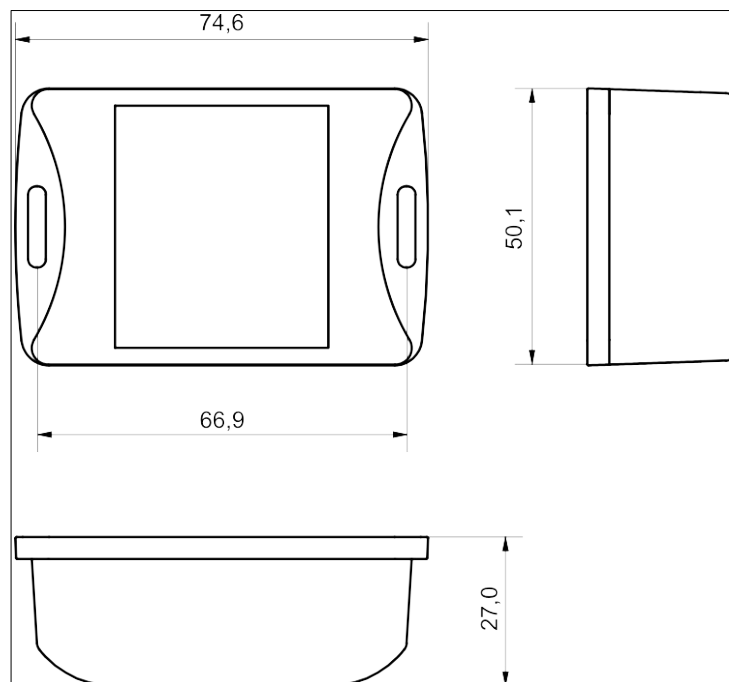
Maximum input frequency: 1000Hz

LAN:

Ethernet 1x10Mbps, RJ45

Dimensions:

All dimensions values are in millimeters.



General view



General features:

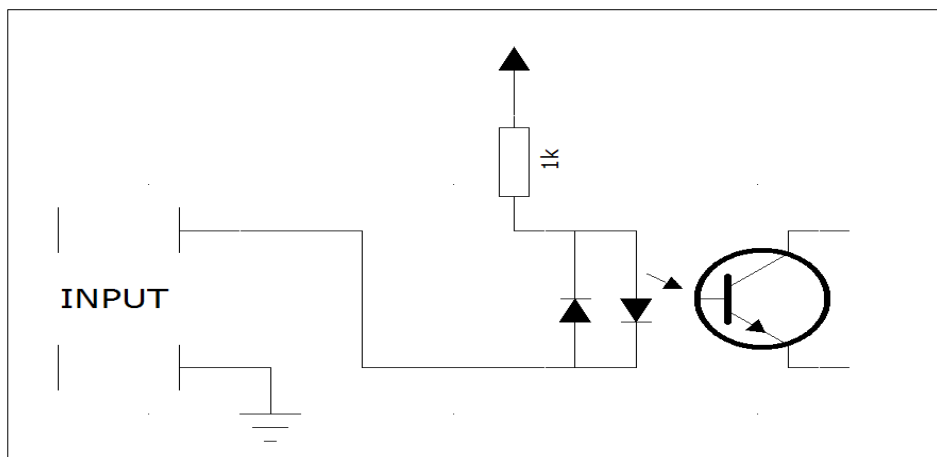
General features				
Version	Number of outputs	Output type	Number of inputs	Input type
PE-1-1	1	relay NO	1	dry contact NO

Indicators:

The device is fitted with display, for indication of current status of an output and an input. Inactive output channel shows up as small 'o' and inactive input channel as small 'i'. The active channels are indicated as large 'O' and 'I'.

Input:

The LanTick-PE-1-1 has opto-isolated NO (Normally open) input.



5.3 Lantick PE-2-2

Technical specification:

Power supply:

10-24VDC (screw terminals 3,5mm) or passive PoE 10-24VDC

Power consumption: 1,5W – 3W

Outputs:

Output type: a relay,

Maximum working voltage: 250V AC,

Maximum relays current load: 4A,

Output NO (normally open), NC (normally closed)

Switch on time: 1ms,

Switch off time: 5ms,

Work modes: bistable, astable, mono stable (one shot), blinds,

Time between switching on and off: 100ms,

Screw terminals connectors.

Inputs:

Input type: dry contact or wet contact (choose when ordering)

Input voltage: 10 – 24V

Maximum counter value: 4 294 967 296

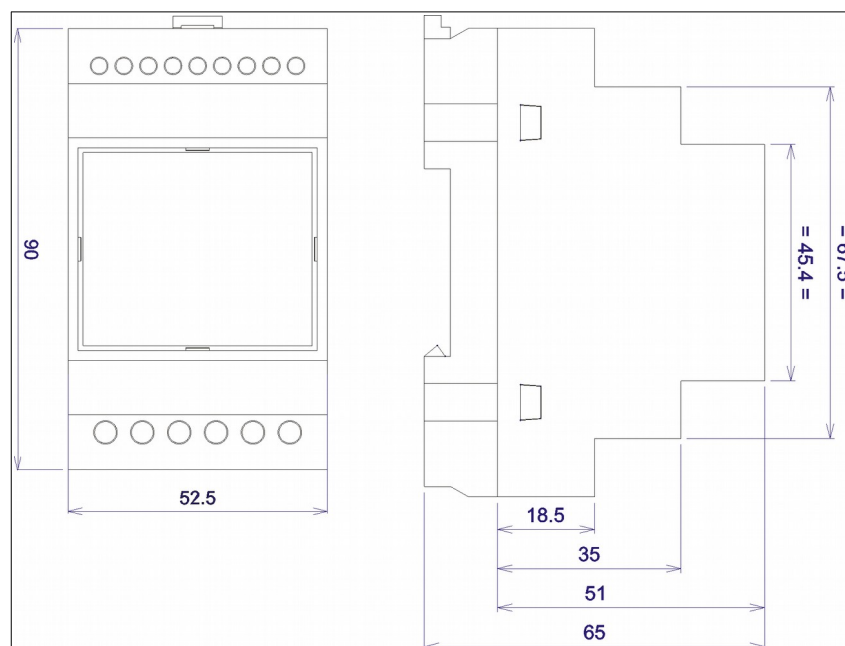
Maximum input frequency: 1000Hz

LAN:

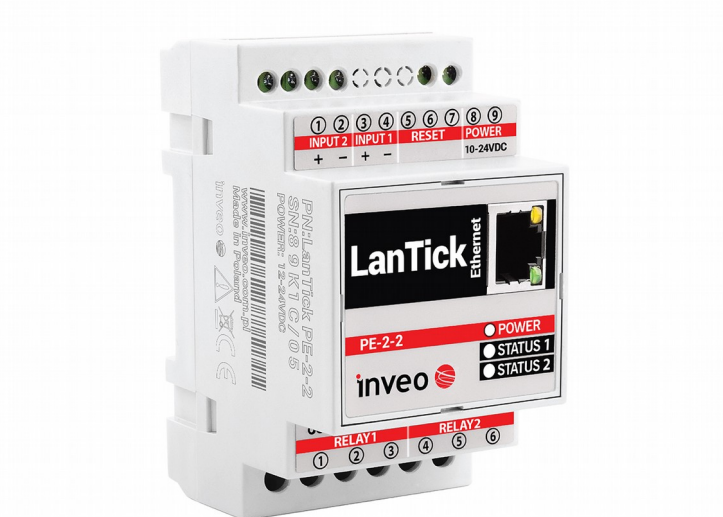
Ethernet 1x10Mbps, RJ45

Dimensions:

All dimension values are in millimeters.



General view:



General features:

General features				
Version	Number of outputs	Outputs type	Number of inputs	Input type
PE-2-2	2	relay NO/NC	2	dry or wet contact NO

Indicators:

The device is equipped with LED diodes which indicate:



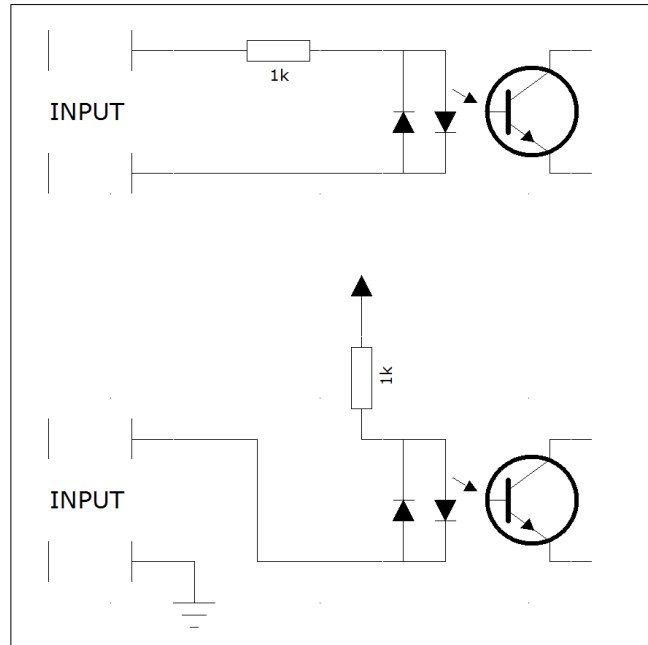
View of LED indicators in PE-2-2

The device PE-2-2	
Name	Description
POWER	The controller device power supply status
Status 1	Output or input status setup
Status 2	Output or input status setup
LINK	active LAN status
ACK	active LAN status

The inputs:

The inputs connection diagrams are shown below. Top of the diagram describes opto-isolated wet contact input.

Bottom of the diagram describes dry contact input NO. Type of the input is set during production stage. It is possible to set up various configurations for both of the inputs.



This opto-isolated inputs are designed to work at input voltage between 10 and 24V.

Connectors:

Inputs side of PE-2-2 device

Terminal number	Terminal name	Description
1	Input 2 +	Input No 2 positive terminal
2	Input 2 -	Input No 2 negative terminal
3	Input 1 +	Input No 1 positive terminal
4	Input 1 -	Input No 1 negative terminal
6	Reset	Reset button
8	Power	Power supply DC 10-24V
9	Power	Power supply DC 10-24V

Outputs side of PE-2-2 device

Terminal number	Terminal name	Description
1	COM	Common terminal for Relay 1
2	NO	Output NO for Relay 1
3	NC	Output NC for Relay 1
4	COM	Common terminal for Relay 2
5	NO	Output NO for Relay 2
6	NC	Output NC for Relay 2

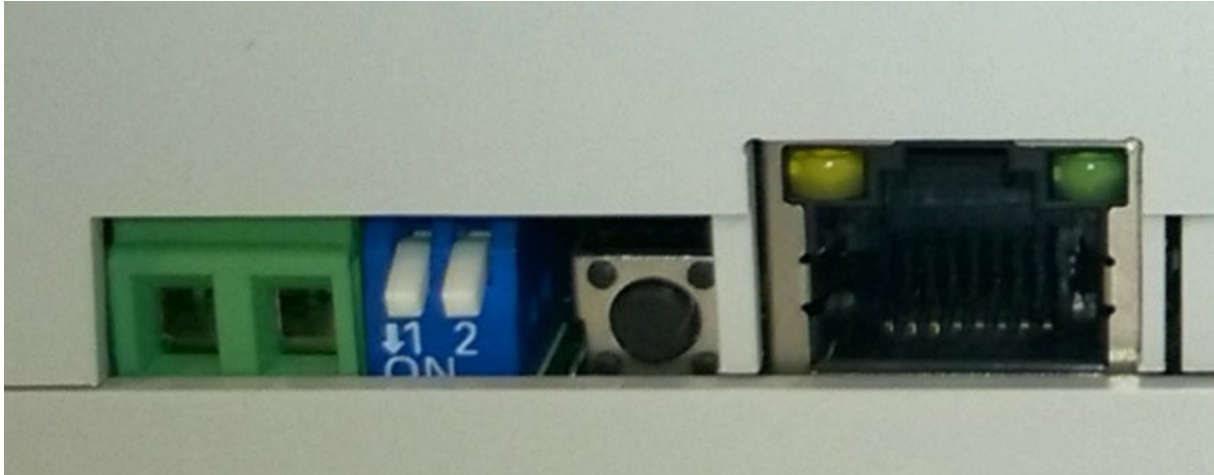
5.4 Lantick PE-4-4, PE-0-8, PE-8-0

Technical specification:

Power supply:

The PE-4-4, PE-0-8 and PE-8-0 devices can be powered in two different ways:

- They can be powered by **10-24VDC** supply connected to **screw terminals** 3,5mm (power **switch** is set to **upward** position),
- They can be powered by LAN **Passive PoE 12-24VDC**, with blue-brown wire pair (power **switch** is set to **downward** position).



Warning! When powered by 12-24 VDC and the power select switch is set to downward position (On), electric potential from the power connector will show up on blue-brown UTP wire pair, which can damage a network device if connected to the Lantick device.

Power consumption: 1,5 – 4,2W (depends of connected outputs load)

Outputs:

Output type: a relay,
Maximum working voltage: 250V AC,
Maximum relays current load: 2A,
Output NO (normally open)
Switch on time: 1ms,
Switch off time: 5ms,
Work modes: bistable, astable, mono stable (one shot), blinds,
Time between switching on and off: 100ms,
Screw terminals connectors

Inputs:

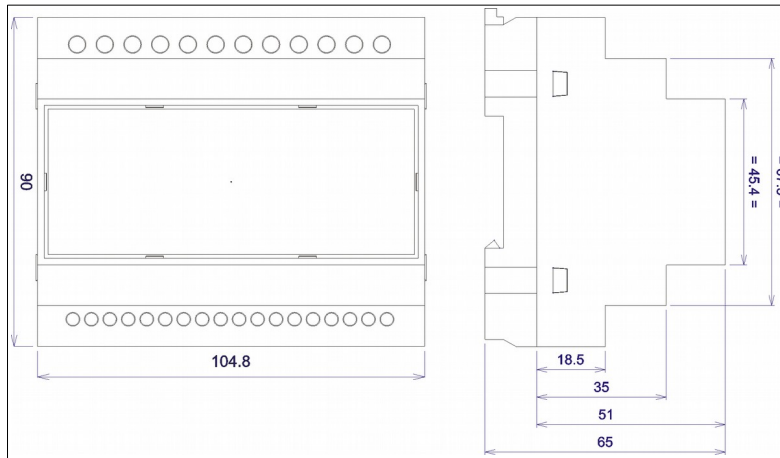
Input type: opto-isolator
Input voltage: 10 – 24V
Maximum counter value: 4 294 967 296
Maximum input frequency: 1000Hz

LAN:

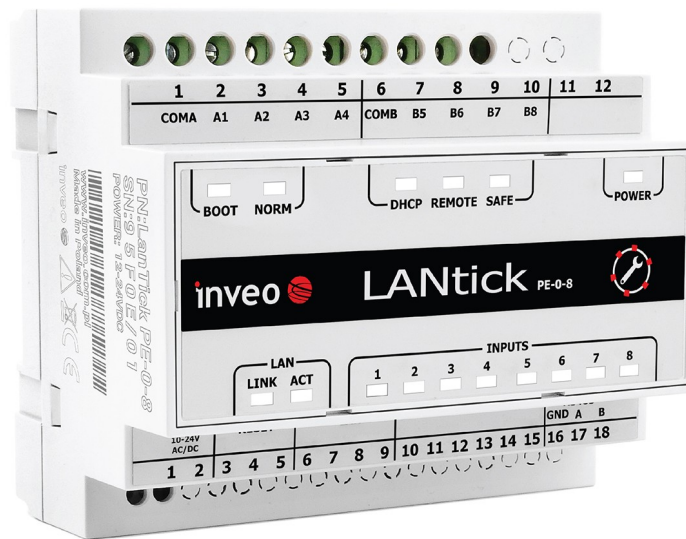
Ethernet 1x10Mbps, RJ45

Dimensions:

All dimension values are in millimeters.



General view:



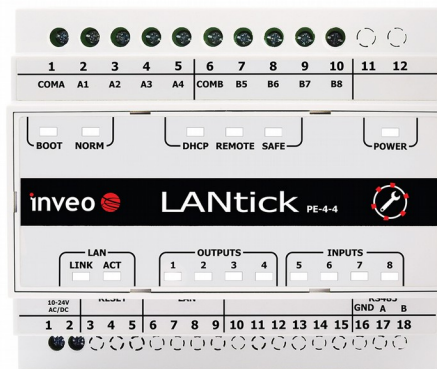
General features:

General features				
Version	Number of outputs	Outputs type	Number of inputs	Input type
PE-4-4	4	relay NO	4	wet contact NO
PE-8-0	8	relay NO	0	N/A
PE-0-8	0	N/A	8	wet contact NO

LED indicators:

The LantickPro device has been equipped with several LED indicators

Device PE-4-4	
Name	Description
POWER	Indicating power supply connected to the device
LINK	Indicating LAN connection present
ACK	Indicating LAN connection present
OUTPUTS 1	Output no 1 status
OUTPUTS 2	Output no 2 status
OUTPUTS 3	Output no 3 status
OUTPUTS 4	Output no 4 status
INPUTS 5	Input no 5 status
INPUTS 6	Input no 6 status
INPUTS 7	Input no 7 status
INPUTS 8	Input no 8 status
SAFE	MODBUS RTU communication loss indicator (optional)
REMOTE	Peer to peer or server dashboard communication indicator
DHCP	DHCP active indicator
NORM	Normal operating mode indicator
BOOT	Indicates that the device is in BOOTLOADER mode



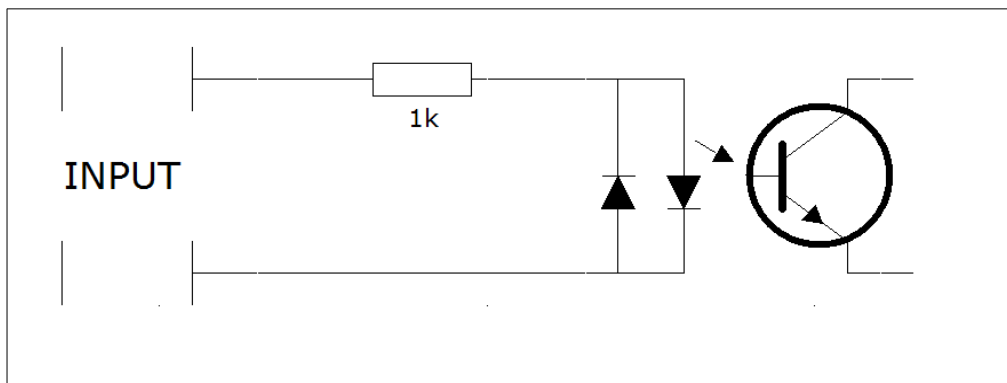
View of LED indicators on PE-8-0

Device PE-8-0	
Name	Description
POWER	Indicating power supply connected to the device
LINK	Indicating LAN connection present
ACK	Indicating LAN connection present
OUTPUTS 1	Output no 1 status
OUTPUTS 2	Output no 2 status
OUTPUTS 3	Output no 3 status
OUTPUTS 4	Output no 4 status
OUTPUTS 5	Output no 5 status
OUTPUTS 6	Output no 6 status
OUTPUTS 7	Output no 7 status
OUTPUTS 8	Output no 8 status
SAFE	MODBUS RTU communication loss indicator (optional)
REMOTE	Peer to peer or server dashboard communication indicator
DHCP	DHCP active indicator
NORM	Normal operating mode indicator
BOOT	Indicates that the device is in BOOTLOADER mode

Device PE-0-8	
Name	Description
POWER	Indicating power supply connected to the device
LINK	Indicating LAN connection present
ACK	Indicating LAN connection present
INPUTS 1	Input no 1 status
INPUTS 2	Input no 2 status
INPUTS 3	Input no 3 status
INPUTS 4	Input no 4 status
INPUTS 5	Input no 5 status
INPUTS 6	Input no 6 status
INPUTS 7	Input no 7 status
INPUTS 8	Input no 8 status
SAFE	MODBUS RTU communication loss indicator (optional)
REMOTE	Peer to peer or server dashboard communication indicator
DHCP	DHCP active indicator
NORM	Normal operating mode indicator
BOOT	Indicates that the device is in BOOTLOADER mode

Inputs:

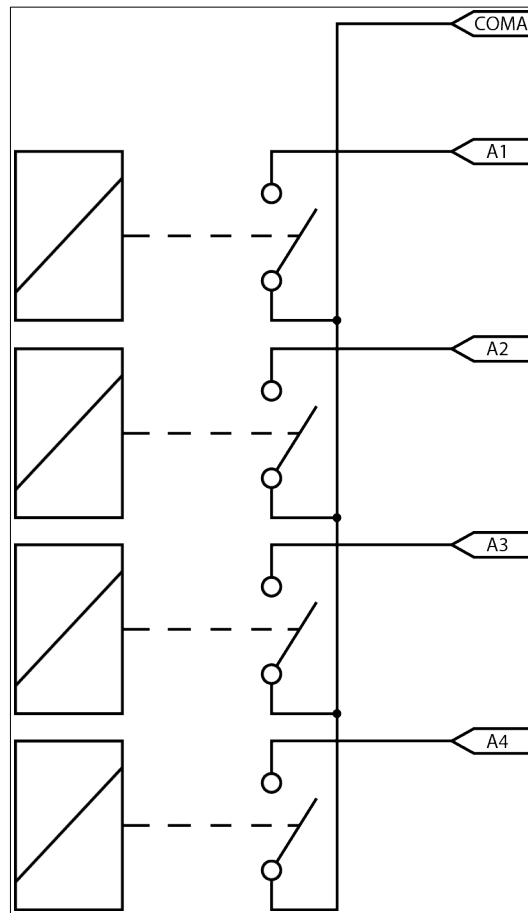
Circuit diagram of the device binary input is shown below:



The diagram describes fully opto-isolated input in **PE-4-4, PE-0-8**.
The **input** is designed to work at **voltage of 10-24 VDC**.

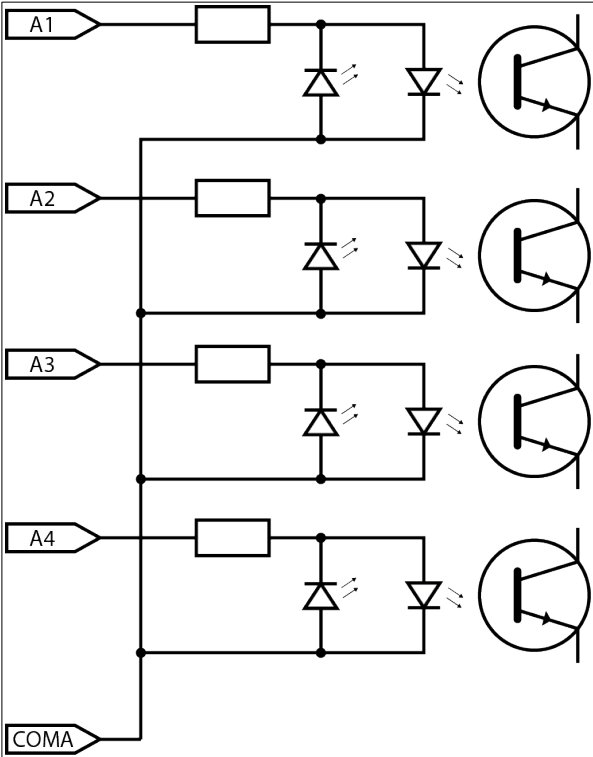
Outputs

The section of relays outputs number 1-4 and 5-8 is shown in the diagram below. The COMx contact is for common output of all four relays.



Inputs

The section of inputs number 1-4 and 5-8 is shown in the diagram below. The COMx contact is common for all four inputs.



Power supply terminals side in the PE-4-4, PE-8-0, PE-0-8 device

Terminal number	Terminal name	Description
1	Power	Power supply terminal 10-24VDC
2	Power	Power supply terminal 10-24VDC
3,4	Pwr select	Selection of power supply method*
5	Reset	Reset button
8	LAN	LAN socket
16	RS485 - GND	Optional RS485 terminal
17	RS485 -A	Optional RS485 terminal
18	RS485 -B	Optional RS485 terminal

Relays terminals side in the PE-4-4 device

Terminal number	Terminal name	Description
1	COM A	Common for outputs number 1-4
2	A1	Output of NO relay 1
3	A2	Output of NO relay 2
4	A3	Output of NO relay 3
5	A4	Output of NO relay 4
6	COM B	Common for inputs number 5-8
7	B5	Input 5
8	B6	Input 6
9	B7	Input 7
10	B8	Input 8

Relays terminals side in the PE-8-0 device

Terminal number	Terminal name	Description
1	COM A	Common for outputs number 1-4
2	A1	Output of NO relay 1
3	A2	Output of NO relay 2
4	A3	Output of NO relay 3
5	A4	Output of NO relay 4
6	COM B	Common for outputs number 5-8
7	B5	Output of NO relay 5
8	B6	Output of NO relay 6
9	B7	Output of NO relay 7
10	B8	Output of NO relay 8

Relays terminals side in the PE-0-8 device

Terminal number	Terminal name	Description
1	COM A	Common for inputs number 1-4
2	A1	Input 1
3	A2	Input 2
4	A3	Input 3
5	A4	Input 4
6	COM B	Common for inputs number 1-4
7	B5	Input 5
8	B6	Input 6
9	B7	Input 7
10	B8	Input 8

5.5 Lantick PE-0-16

Technical specification:

Power supply:

10-24VDC supply connected to screw terminals 3,5mm

or

PoE 802.3af via port LAN 1

or

Passive PoE 10-24VDC via port LAN 2

Power consumption: 1-2W

Inputs:

Input: galvanic isolation NO

Input type: dry contact / wet contact

Input voltage: 10 – 24V

Maximum counter value: 4 294 967 296

Maximum input frequency: 1000Hz

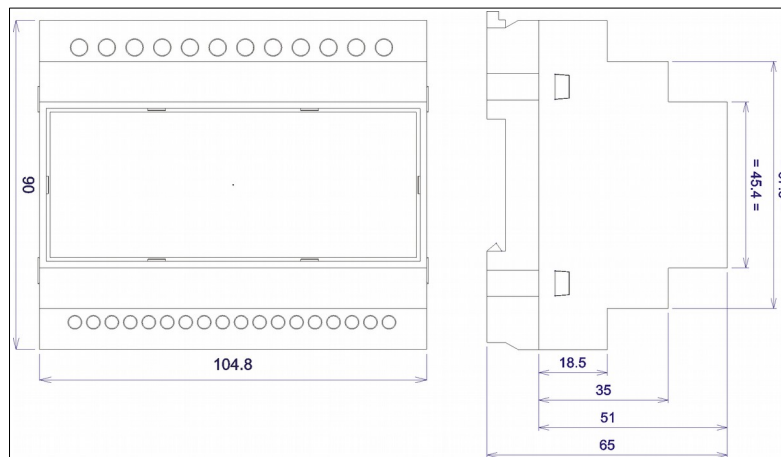
LAN:

Ethernet 2x10/100 Mbps, RJ45

built-in switch for connecting other LAN devices

Dimensions:

All dimension values are in millimeters.



General view:

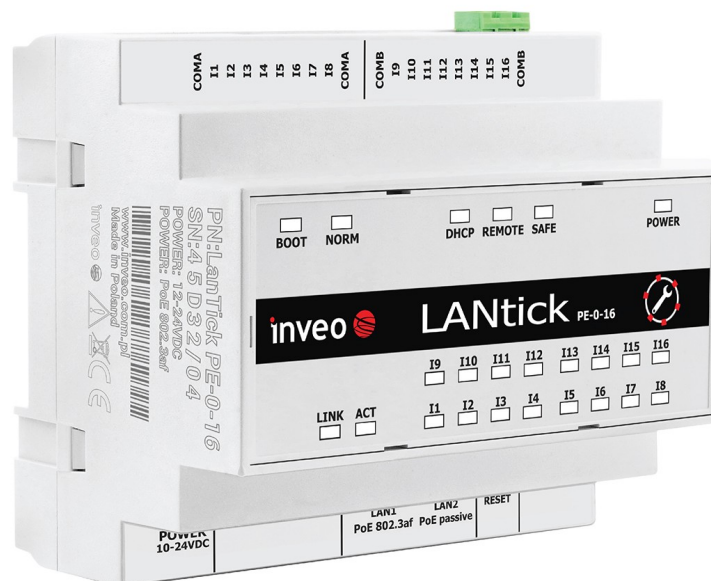


General features:

General features				
Version	Number of outputs	Outputs type	Number of inputs	Input type
PE-0-16	0	N/A	16	wet contact NO / dry contact NO

LED indicators:

The LantickPro device has been equipped with several LED indicators



Device PE-0-16	
Name	Description
POWER	Indicating power supply connected to the device
LINK	Indicating LAN connection present
ACK	Indicating LAN connection present
INPUTS 1	Input no 1 status
INPUTS x	Input no x status, x=2-16
SAFE	MODBUS RTU communication loss indicator (optional)
REMOTE	Peer to peer or server dashboard communication indicator
DHCP	DHCP active indicator
NORM	Normal operating mode indicator
BOOT	Indicates that the device is in BOOTLOADER mode

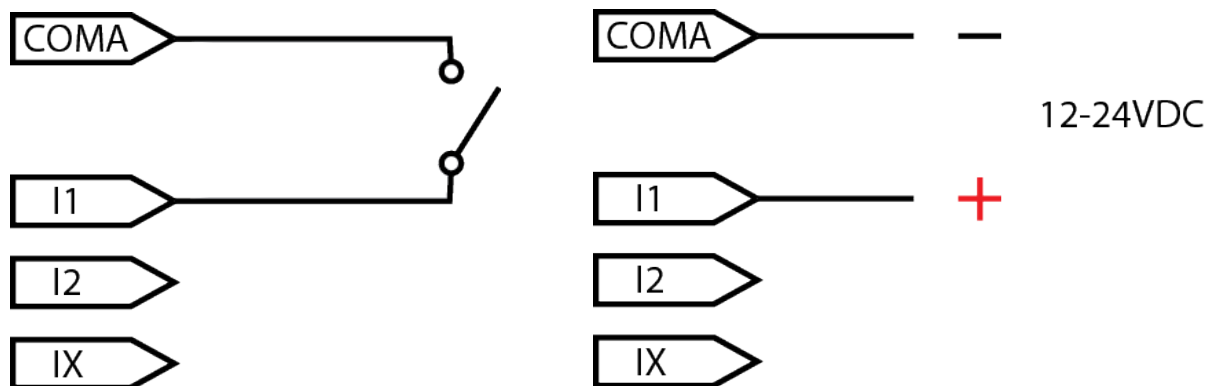
Power supply terminals side in the PE-0-16 device

Terminal name	Description
Power	Power supply terminal 10-24VDC
LAN 1	LAN socket – PoE 802.3af
LAN 2	LAN socket – Passive PoE
Reset	Reset button

Outputs terminals side in the PE-0-16 device

Terminal name	Description
COM A	Common for inputs no 1-8
I1	Input no 1
IX	Input no X, X=2:8
COM A	Common for inputs no 1-8
COM B	Common for inputs no 9-16
I9	Input no 9
IX	Input no X, X=10:16
COM B	Common for inputs no 9-16

Examples of input connection



5.6 Lantick PE-16-0

Technical specification:

Power supply:

10-24VDC supply connected to screw terminals 3,5mm

or

PoE 802.3af via port LAN 1

or

Passive PoE 10-24VDC via port LAN 2

Power consumption: 1-2W

Outputs:

Output type: transistor,

Maximum input voltage: 5-28VDC,

Max load current: 1.7A per channel.

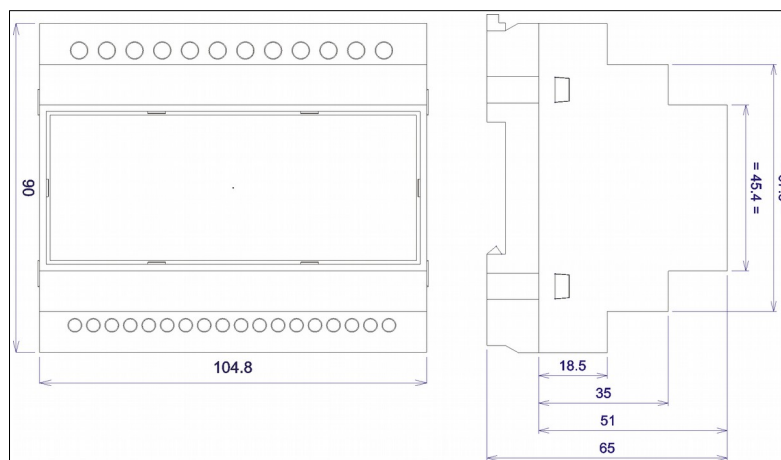
LAN:

Ethernet 2x10/100 Mbps, RJ45

built-in switch for connecting other LAN devices

Dimensions:

All dimension values are in millimeters.



General view:

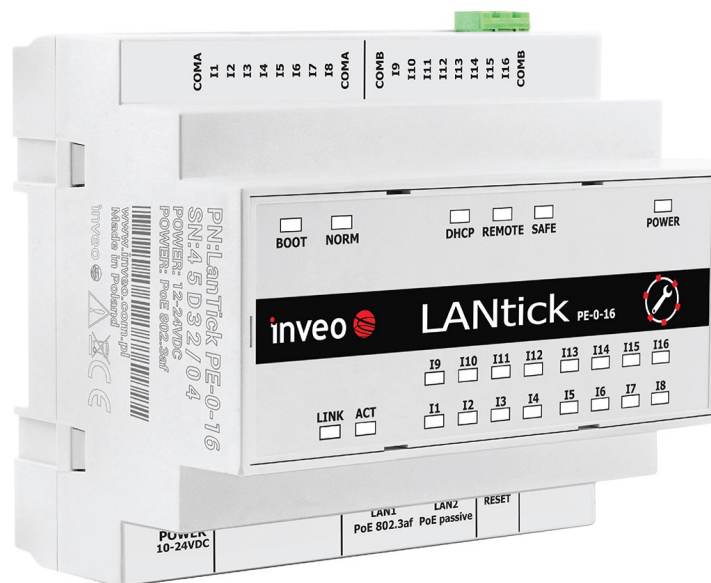


General features:

General features				
Version	Number of outputs	Outputs type	Number of inputs	Input type
PE-16-0	16	transistor	0	N/A

LED indicators:

The LantickPro device has been equipped with several LED indicators



Device PE-16-0	
Name	Description
POWER	Indicating power supply connected to the device
LINK	Indicating LAN connection present
ACK	Indicating LAN connection present
Q1	Output no 1 status
Qx	Output no x status, x=2-16
SAFE	Modbus RTU communication loss indicator (optional)
REMOTE	Peer to peer or server dashboard communication indicator
DHCP	DHCP active indicator
NORM	Normal operating mode indicator
BOOT	Indicates that the device is in BOOTLOADER mode

Power supply terminals side in the PE-16-0 device

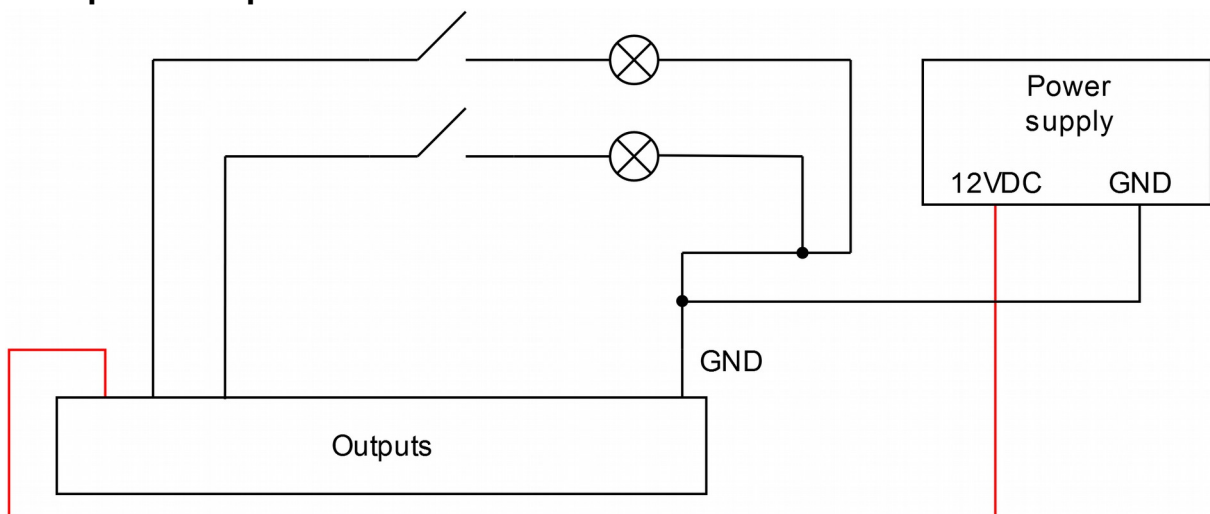
Terminal name	Description
Power	Power supply terminal 10-24VDC
LAN 1	LAN socket – PoE 802.3af
LAN 2	LAN socket – Passive PoE
Reset	Reset button

Outputs terminals side in the PE-16-0 device

Terminal name	Description
COM A	Common for outputs no 1-8
Q1	Output no 1
QX	Output no X, X=2:8
COM A	Common for outputs no 1-8
COM B	Common for outputs no 9-16
Q9	Output no 9
QX	Output no X, X=10:16
COM B	Common for outputs no 9-16

Attention! Lantick PE-16-0 outputs must be connected in such a way that GND of the power supply, Lantick and connected device are common.

Examples of output connection:



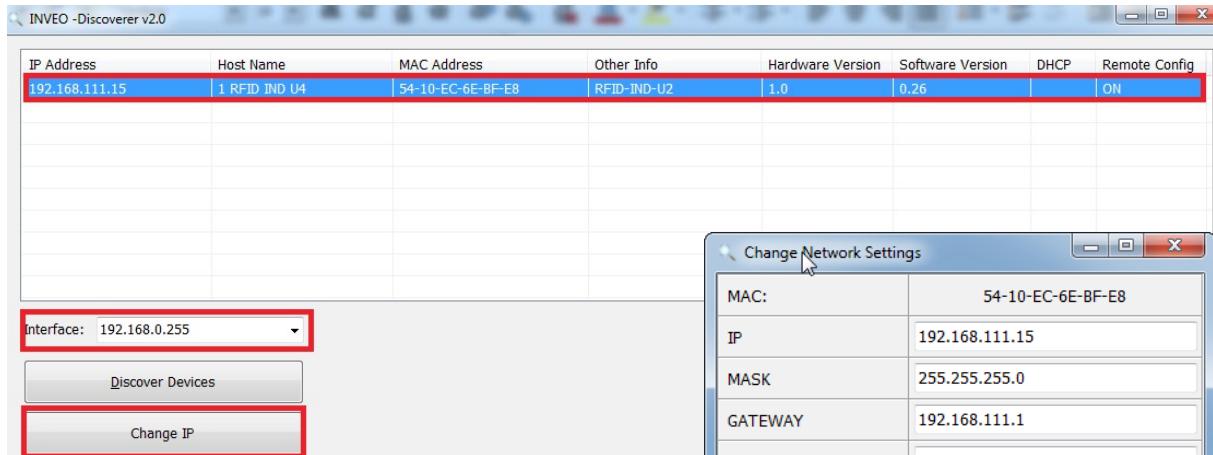
6 Configuration of the device

The device when used for first time needs to be configured.

There are two methods to do so. The network configuration can be easily changed by Inveo "Discoverer" software:

6.1 Changing the device's IP address by Discoverer application

When the "Discoverer" is opened and the relevant device is found, choose Interface list box and click on Change IP button.



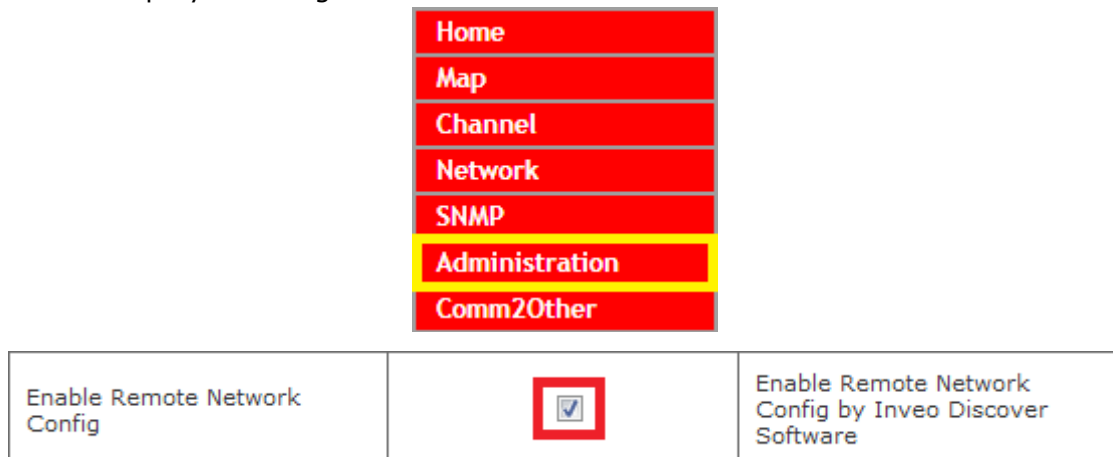
In a new opened dialog box, settings such as IP address, MASK, GATEWAY, DNS1/DNS2 and the Host name can be changed.

Please save correct settings by choosing **Change** button.

If Remote Config is disabled (enabled by default), it is necessary to configure the device by changing the computer's subnet (chapter 6.2).

To enable the remote configuration it is necessary to enter tabs **Administration** → **Services** and check mark **Enable Remote Network Config**

Save the setup by selecting **Save** button.

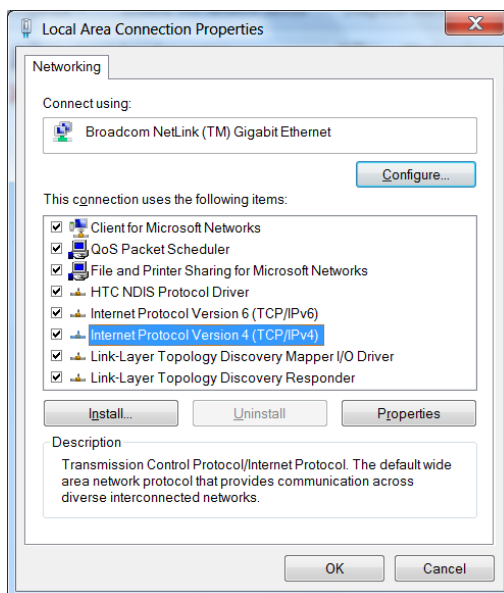


6.2 Changing the PC's subnet address

After the device is connected to a network, a subnet address of a PC which is connected the same network has to be changed.

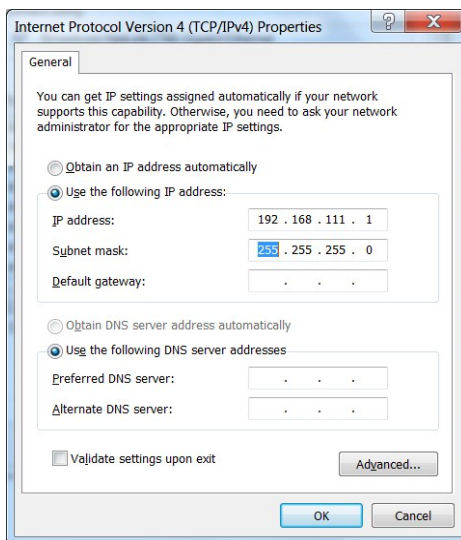
To do so, go to the PC's MS Windows network configuration: **Start->Control panel ->Network and Sharing Center->Network and Internet->Network Connections**, then choose the related controller and right click on „Properties“.

After selecting this option configuration window will show up:



Changing network settings in MS WINDOWS


Next choose "Internet Protocol (TCP/IP)", double click on it and enter following settings:



Illustrative TCP/IP protocol settings

After saving changes by clicking OK, open a web browser and enter in the address line: **192.168.111.15**. Next change the following: ("**Default user name / password**" to admin/admin00))

In the **Network** tab it is possible to change LAN parameters.


www.inveo.com.pl

- Model: LantickPro-4-4
- IP: 192.168.111.81
- Name:
- Firmware: 3.18
- MAC: D8:80:39:5D:0B:05

- Home
- Map
- Channel
- Network
- SNMP
- Administration
- Comm2Other

Network Configuration

This page allows the configuration of the device's network settings.

IP Configuration		
Name	Value	Description
Host Name	<input type="text" value="LANTICKPRO"/>	0..15 characters
DHCP	<input type="checkbox"/>	Enable DHCP Client
IP Address	<input type="text" value="192.168.111.81"/>	A.B.C.D
IP Mask	<input type="text" value="255.255.255.0"/>	A.B.C.D
Gateway	<input type="text" value="0.0.0.0"/>	A.B.C.D
DNS1	<input type="text" value="0.0.0.0"/>	A.B.C.D
DNS2	<input type="text" value="0.0.0.0"/>	A.B.C.D
Destination IP	<input type="text" value="0.0.0.0"/>	Address of other device to communicate (1 to 1 TCP connection)
Destination Port	<input type="text" value="0"/>	Port to communicate
Reset to default	<input type="text"/>	To reset the device type in this field 'reset'

To set up the network settings of the device, use the following fields:

- **Host Name** – NETBIOS name,
- **DHCP** – checking this box force use of the address assigned by the DHCP server
- **IP Address** – the IP address of the device (at this address, the device will be visible on the network),
- **IP Mask** – IP subnet mask,
- **Gateway** – network gateway,
- **DNS1, DNS2** – DNS servers addresses,
- **Destination IP** – IP address of the device which will be used for receiving inputs or outputs in peer to peer communication,
- **Destination Port** – listening port of a remote device,
- **Reset to default** – reset the device to factory default setting. Write in the empty field word "reset" and confirm by selecting Save button.

After making all changes, select **Save**.

7 The device functions

7.1 The device status

The status of the device can be seen in a web browser at **192.168.111.15** by default. After successful login to the device, general parameters are shown on main page.

- Model: LantickPro-4-4
- IP: 192.168.111.80
- Name:
- Firmware: 3.18
- MAC: D8:80:39:5C:9F:55

Model: the device model (e.g. LantickPro-4-4)





Firmware: firmware version installed in the device

IP: IP address of the device

MAC: the device MAC address

Name: the device name created by a user

Table OUTPUTS



Outputs		
Name	On/Off	Coil State
CH 1		
CH 2		

Name: The channel name assigned by a user (default: CH1, CH2...)

On/Off: A user can select on or off for the output by clicking on the icon. The icon color informs about status of the channel – red- output is off, green- output is on.

Coil State: Relay status- on or off. This can be different from On/off state. For example in astable mode when a channel is active (On/off is green), coil state can flip the status colors according to settings Time On and Time off.

Table INPUTS

Inputs			
Name	In State	Counter	Action
CH 5		0	-RESET-
CH 6		0	-RESET-

Name: The channel name assigned by a user (default: CH1, CH2...)

Status: state of inputs (red color – off, green color – on)

Counter: Counter's state of input (relates to inputs, only. Counter's state of outputs is described below)

Action: Counter reset. Selecting "Reset" will reset the counter to zero

The device status can also be found by referencing the site http://IP_thedevicestat.php or http://IP_thedevicestatus.xml e.g.: <http://192.168.111.17/stat.php>

```
<response>
<prod_name>Lantick-8-0</prod_name>
<user_name>
<out>0000000000000000</out>
<on>0000000000000000</on>
<in>0000000000000000</in>
<counter1>166</counter1>
<counter2>7</counter2>
<counter3>22</counter3>
<counter4>2</counter4>
<counter5>3</counter5>
<counter6>3</counter6>
<counter7>2</counter7>
<counter8>2</counter8>
<counter9>0</counter9>
<counter10>0</counter10>
<counter11>22</counter11>
<counter12>0</counter12>
<counter13>2</counter13>
<counter14>0</counter14>
<counter15>0</counter15>
<counter16>1</counter16>
<insim/>
</response>
```

The above XML file shows inside the tags about:

- <prod_name> name of the device,
- <out> outputs status,
- <on> output coil,
- <in> inputs status,
- <counter[x]> counter status (applies to both – inputs and outputs).

State of **outputs** counter can be reset by sending `nrIP/stat.php?cnt=x,y` command

Where:

x – output number

y – value

E.g.: <http://192.168.111.16/stat.php?cnt=8,0>,

Resetting a state of **inputs** counter can be done by selecting word RESET at “Action” column (in the Inputs table) or by sending `nrIP/stat.php?cnt=x,y` command.

Where:

x- input number

y- value

For the Lantick devices which have both inputs and outputs, the inputs assigned numbers starts as follows:

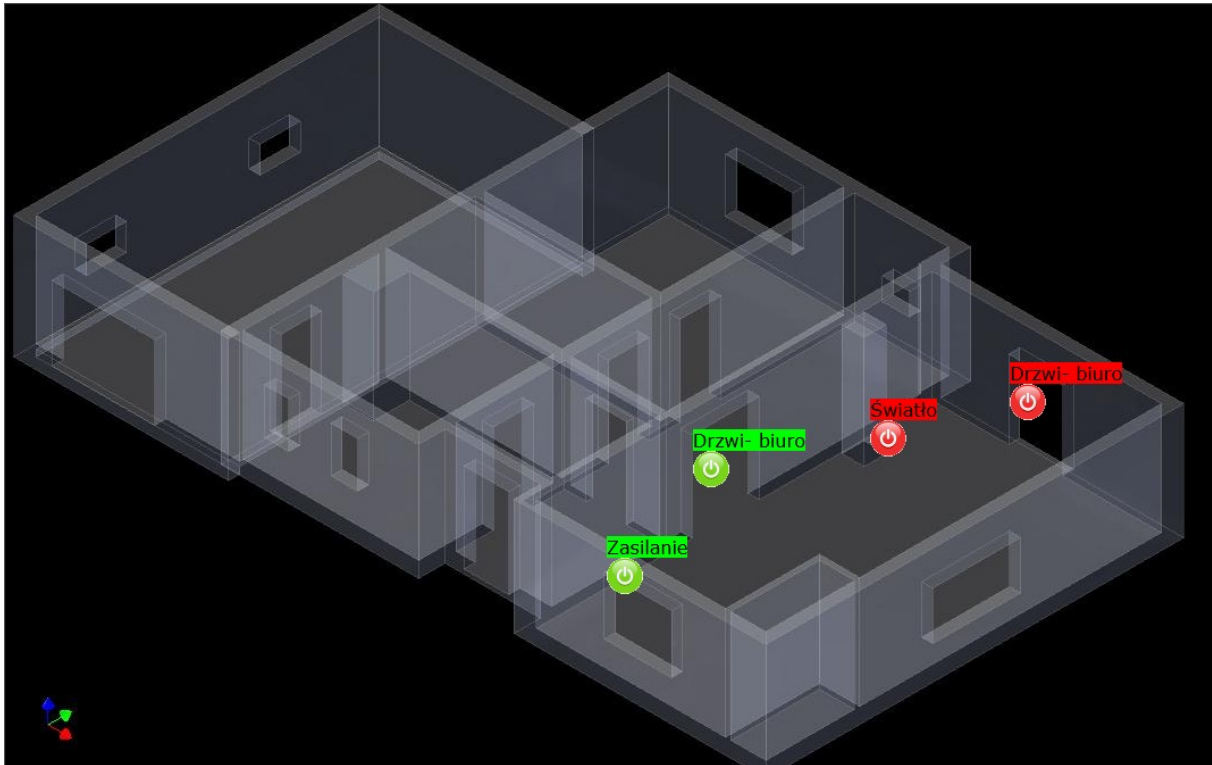
PE-2-2 x=3,4

PE-4-4 x=5,6,7,8

More HTTP GET commands in chapter 8.12.

7.2 Visualization

The device software has built in a function for virtual interaction with the device's inputs and outputs. Status of the inputs and outputs can be changed by selecting suitable interaction icons, which are located on a background image of e.g. a building arrangement.



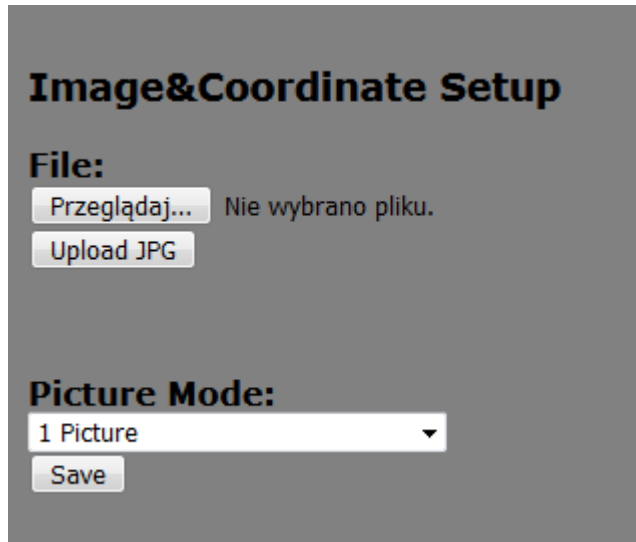
To start the visualization open tab *Administration*, check mark **Enable Graphic Mode Config** option and save it with **Save** button.

Enable Graphic Mode Config	<input checked="" type="checkbox"/>	Enable coordinate graphics points config.
----------------------------	-------------------------------------	---

The visualization backgrounds change and placement of the inputs, outputs interaction icons can be done by saving settings in graphic mode. This is available in the *Map* tab.

Background

The background image can be selected by choosing **Search** button and selecting suitable image from a computer image resources. The device allows JPG image format. Next, click **Upload JPG** button and let this load up (the computer pointer should change from busy (hourglass) to normal). Afterwards, refresh (F5 key) the browser.



After appropriate background image is selected, inputs outputs icons location can be changed. Move a display pointer to the chosen icon, press and hold the left mouse button and move the icon to required coordinates.

Click **Save** button to confirm the new arrangement.

A pointer click on an output icon inverts a status of the output. Clicking on the icon located on the image changes the state of the corresponding relay. An icon background color shows the output relay contacts status (green - engaged, red - disengaged).

Picture Mode

The device allows changing of graphic background according to the status of a chosen channel.

The background can be obtained by creation of one graphic file which consists of two pictures, one above the other. The Lantick device will show upper or lower half of the file image depending of the status of a channel.

Channel selection field – Picture Mode at the bottom of MAP tab, allows you to choose:

- **1 Picture** – single image (entire view)
- **2 Pictures** – Select by Channel X – selection mode of two pictures, toggled by input No. X or output No. X.

Picture Mode setting could be used for illustration of a blind status.

When the No. X output is disengaged, the image section of a closed blind can be seen. When the output is engaged, the other section of the image will be shown with the blind opened.

Important!

After settings changes are done open tab *Administration*, uncheck **Enable Graphic Mode Config** option and save it with **Save** button.

7.3 Outputs configuration

The device outputs may work in a user chosen mode and names of inputs/outputs are easy to change.

This settings are available in the *CHANNEL* tab.

Relays outputs configuration

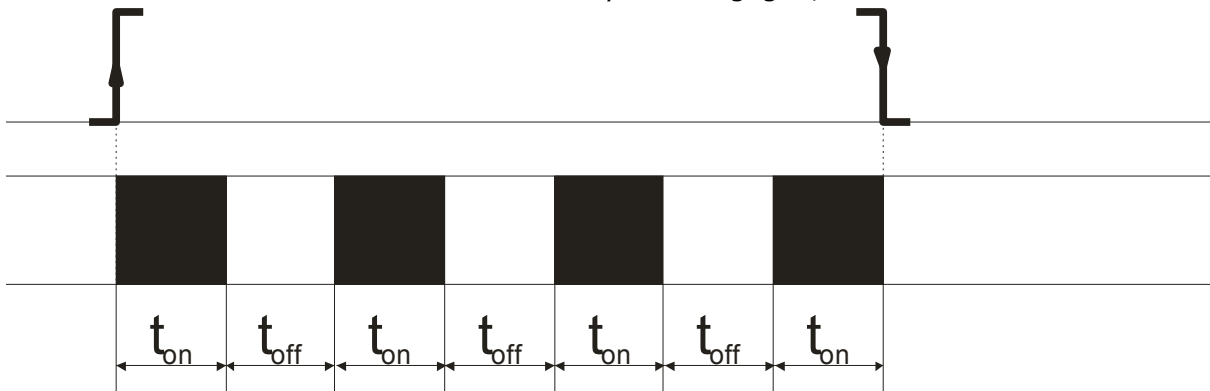
Channel 1 - CH 1		
Name	Value	Description
Name	<input type="text" value="CH 1"/>	0..15 characters
Output mode	<input type="text" value="Bistabile"/>	Output mode
Time On	<input type="text" value="20"/>	x 0.1s (ie. 15 means 1,5 second)
Time Off	<input type="text" value="20"/>	x 0.1s (ie. 15 means 1,5 second)
Power on state	<input type="checkbox"/>	
Invert out	<input type="checkbox"/>	Invert output state (NO->NC)

Name – name of an output defined by a user (max. 15 characters)

Output mode – an output work mode

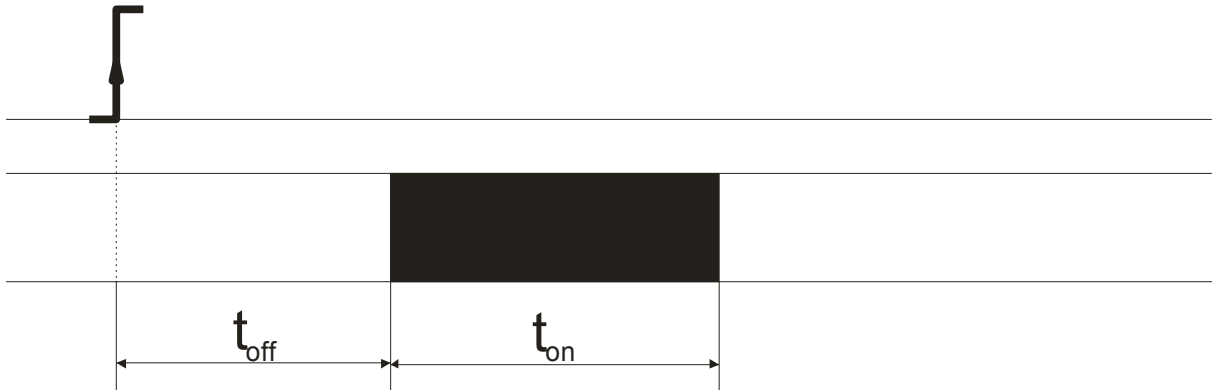
Every relay built to the device may work in five specific work modes:

- I. **Bistable** mode – a relay has one determined status (is engaged or disengaged).
- II. **Astable** mode – in this mode after channel is switched on, a selected relay opens and closes contacts by turns. Open and close times are set by:
 - **Time On** – time when a relay is engaged,
 - **Time Off** – time when a relay is disengaged,

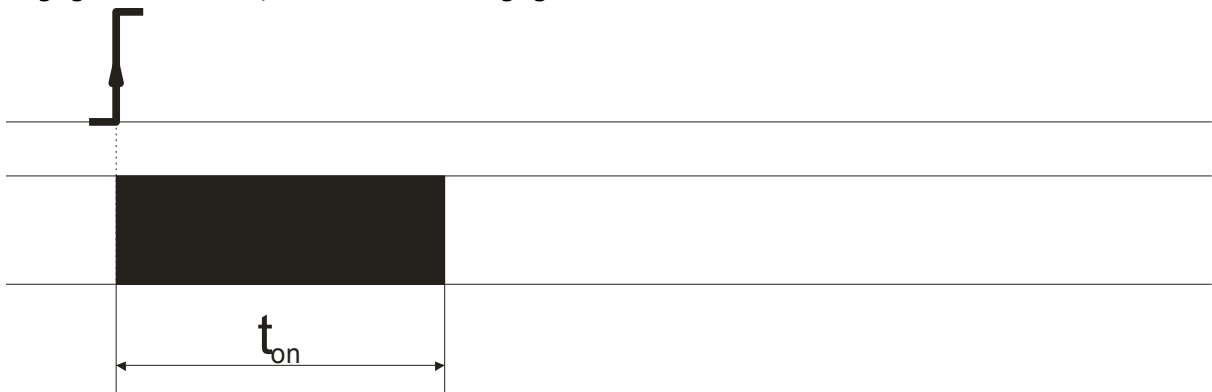


III. TimeBased mode – One pulse mode

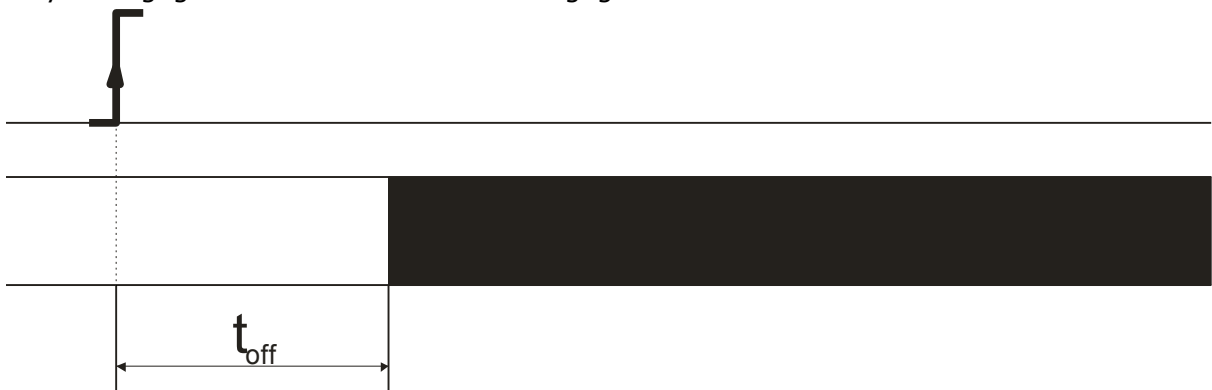
In **TimeBased** mode, if times $t_{on} > 0$ and $t_{off} > 0$, then after triggering the output the relay will stay disengaged for t_{off} and then it will engage for t_{on} time.



In **TimeBased** mode, if $t_{on} > 0$ and $t_{off} = 0$ then after triggering the output, the relay will engage for t_{on} time, then it will disengage.



In **TimeBased** mode, if $t_{on} = 0$ and $t_{off} > 0$ then after triggering the output, the relay will stay disengaged for t_{off} and then it will engage.



IV. **Shutter mode** – shutters control mode

Shutter control mode joins logically two relays together in a group.

In this configuration the control device will not allow to enable both relays controlling the shutter.

Two relays outputs can control one shutter.

Channel 1&2 - Roleta pokój		
Name	Value	Description
Name	<input type="text" value="Roleta pokój"/>	0..15 characters
Output mode	<input type="text" value="Shutter"/>	Output mode
Full move Time	<input type="text" value="20"/>	x 0.1s (ie. 15 means 1,5 second)
Half move Time	<input type="text" value="20"/>	x 0.1s (ie. 15 means 1,5 second)

Full move Time – total time needed to fully close or open a shutter

Half move Time – time needed to half close or open a shutter

V. **Disable** – channel not active during control by communications protocols

Power on state – sets up of an output status after the device is turned on.

Invert out – invert an output state to normally closed.

To apply changes press **Save** button.

7.4 Inputs configuration

Binary inputs configuration

Channel 1 - CH 1		
Name	Value	Description
Name	<input type="text" value="CH 1"/>	0..15 characters
Destination channel	<input type="text" value="Dest:Off"/>	Select destination channel in 1 to 1 TCP connection
<input type="button" value="Save"/>		

Names of the inputs channels are editable and can be changed in the Channel tables. Inputs channels can transmit a status commands to external Lantick devices.

Name field – name of a channel (max. 15 characters)

Destination channel field – a chosen channel, which will react to an input states during linkage with an external Lantick device in peer to peer connection.

To apply changes press **Save** button.

Inputs simulation mode




When designing advanced control system, a user may simulate operation of the system. To start simulation option simply write in address field of a web browser:

http://nr_ip/stat.php?insim=1

After the device opens the option, it is possible to check activation of an input by selecting the chosen input icon with a mouse pointer. The input can stay in this state as long as left key of the mouse pointer will be held on the input icon.

To switch the simulation mode off send the command:

http://nr_ip/stat.php?insim=0

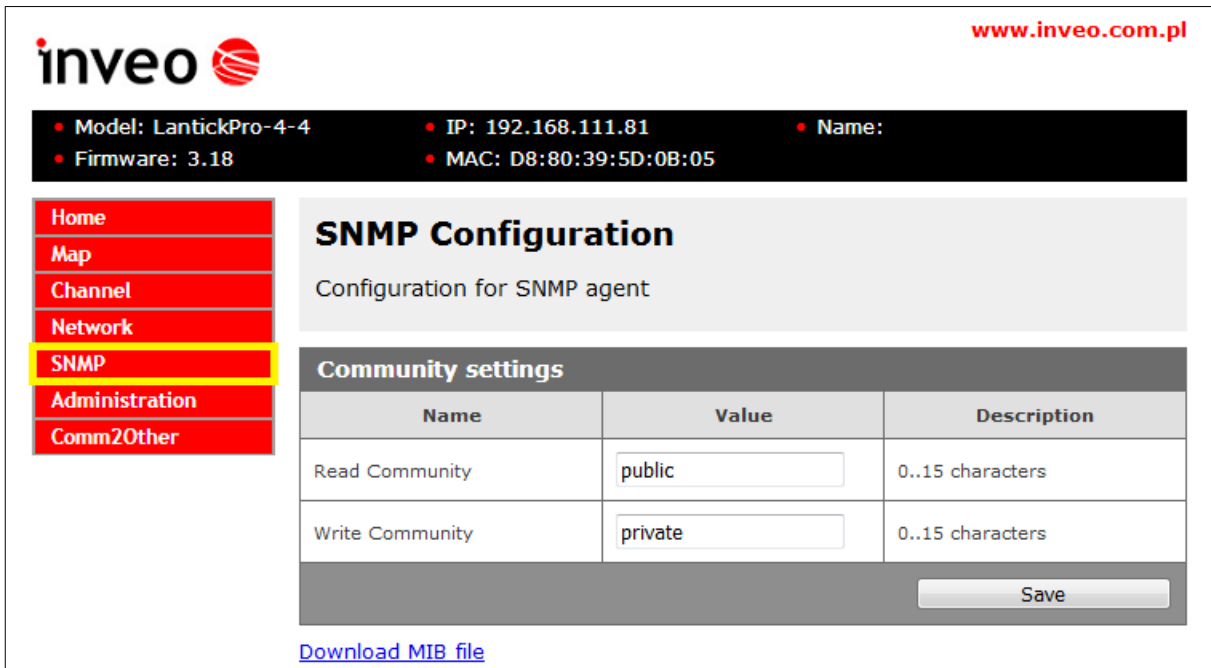
Inputs ! SIMULATE !			
Name	In State	Counter	Action
CH 1		11	-RESET-
CH 2		6	-RESET-
CH 3		2	-RESET-

7.5 SNMP server configuration

The device has inbuilt SNMP v2c server. This function may be enabled by selection of following tabs **Administration** → **Services** → **Enable SNMP**.

SNMP protocol lets load and set up outputs states as well as load inputs and counter states.

MIB file is available for download on SNMP tab at **Download MIB file**.



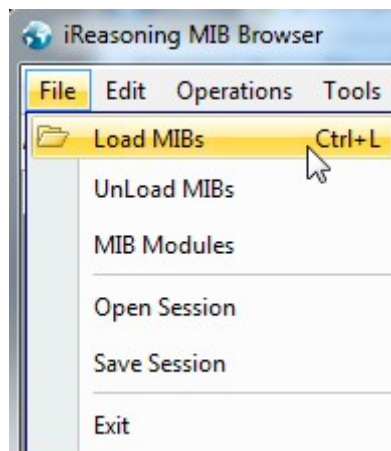
The screenshot shows the Inveo web interface. At the top left is the Inveo logo and at the top right is the URL www.inveo.com.pl. Below the logo is a black bar containing device information: Model: LantickPro-4-4, IP: 192.168.111.81, Name: (empty), Firmware: 3.18, MAC: D8:80:39:5D:0B:05. A red navigation menu on the left lists: Home, Map, Channel, Network, **SNMP** (highlighted), Administration, and Comm2Other. The main content area is titled "SNMP Configuration" and contains the text "Configuration for SNMP agent". Below this is a "Community settings" section with a table:

Name	Value	Description
Read Community	<input type="text" value="public"/>	0..15 characters
Write Community	<input type="text" value="private"/>	0..15 characters

Below the table is a "Save" button and a link for "Download MIB file".

To use the SNMP protocol, it is necessary to save the MIB file by right-clicking on the Download MIB file link. Select the "Save link as" option.

Then use the appropriate program, for example **MIB Browser** (<http://ireasoning.com/download.shtml>). After starting the program, you need to load the downloaded MIB file.



The next step is entering the IP address of the device (in this case Lantick) and selecting the appropriate operation. The OID field can be left blank for the program to display all components in the table.

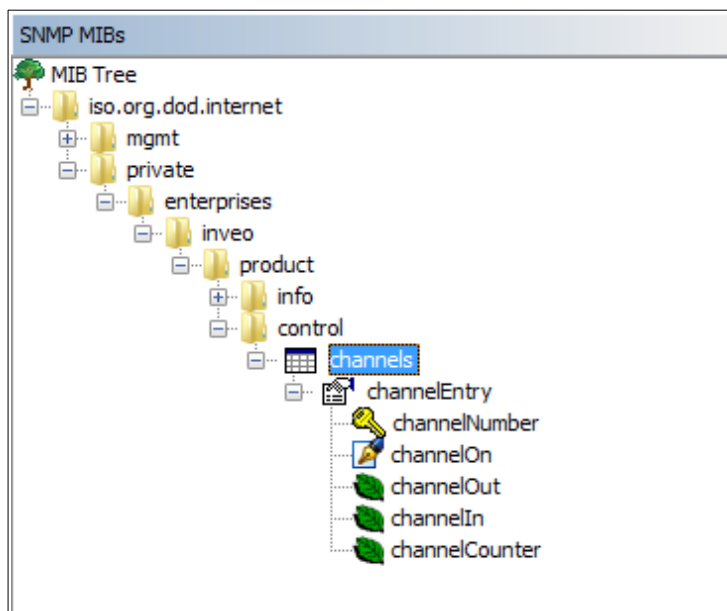
Address: 192.168.111.15 Advanced... OID: Operations: Walk Go

The table with sample elements is shown below.

channelNumber.1	1	Integer	192.168.11...
channelNumber.2	2	Integer	192.168.11...
channelNumber.3	3	Integer	192.168.11...
channelNumber.4	4	Integer	192.168.11...
channelNumber.5	5	Integer	192.168.11...
channelNumber.6	6	Integer	192.168.11...
channelNumber.7	7	Integer	192.168.11...
channelOn.0	Off (0)	Integer	192.168.11...
channelOn.1	Off (0)	Integer	192.168.11...
channelOn.2	Off (0)	Integer	192.168.11...
channelOn.3	Off (0)	Integer	192.168.11...
channelOn.4	Off (0)	Integer	192.168.11...
channelOn.5	Off (0)	Integer	192.168.11...
channelOn.6	Off (0)	Integer	192.168.11...
channelOn.7	Off (0)	Integer	192.168.11...
channelOut.0	Off (0)	Integer	192.168.11...
channelOut.1	Off (0)	Integer	192.168.11...
channelOut.2	Off (0)	Integer	192.168.11...
channelOut.3	Off (0)	Integer	192.168.11...
channelOut.4	Off (0)	Integer	192.168.11...

The table shows the states of inputs, outputs, counters and main information about the Lantick module.

To view a selected fragment from the MIB tree table, double-click on the interesting element. The access path is displayed on the left side of the program window.



The address of each element in the MIB tree is assigned its OID.
 OID iso.org.dod.internet: .1.3.6.1

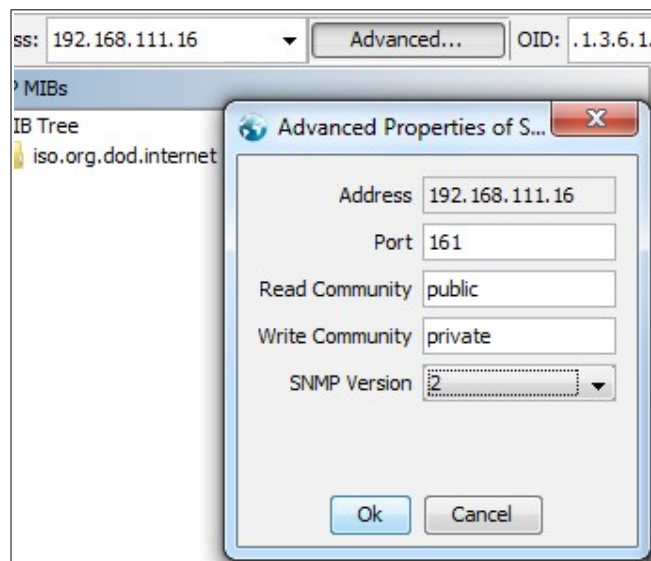
the next numbers define folders
 OID inveo folder .1.3.6.1.4.1.42814
 Lantick .1.3.6.1.4.1.42814.28
 control .1.3.6.1.4.1.42814.28.3
 channels .1.3.6.1.4.1.42814.28.3.1
 entrance to individual channels .1.3.6.1.4.1.42814.28.3.1.1

The last numbers define the functions on the selected channel. It means that:

- 1. Turning the output on / off**
 .1.3.6.1.4.1.42814.28.3.1.1.2.x, where x is the output number
- 2. Checking the coil status**
 .1.3.6.1.4.1.42814.28.3.1.1.3.x, where x is the output number
- 3. Checking the input state**
 .1.3.6.1.4.1.42814.28.3.1.1.4.x, where x is the input number
- 4. Checking the counter input**
 .1.3.6.1.4.1.42814.28.3.1.1.5.x, where x is the input number

Example:

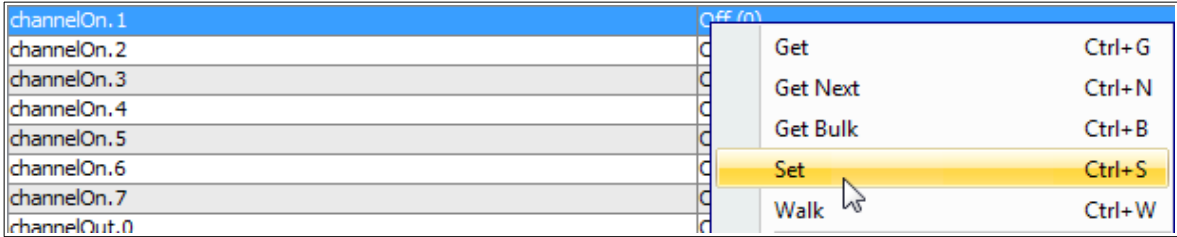
To switch on the output number 2, it is necessary to configure the advanced settings. To do this, press the Advanced button next to the device's IP address.



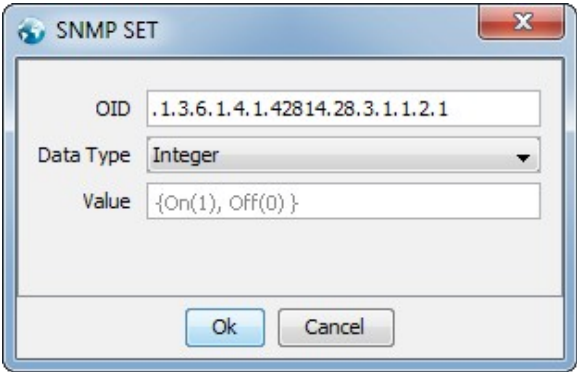
In **Read Community** field and in **Write Community** field write a value from LanTick *SNMP* tab.

Read Community	public
Write Community	private

After accomplish the above steps, you can set the output number 2 enabled. Select the channeOn.1 row (channel 1, because the outputs are numbered from 0) and press right mouse button then select the option **Set**.



The next step is to enter the value '1' in the Value field and confirm with the OK button.



7.6 Communications protocols and administration

The Administration settings allow for changing the name, access password and to enable/disable particular services in the device.

The device name

The controller device used in a controlling system can be uniquely named and identified.

Module name		
Name	Value	Description
Module name	<input type="text"/>	0..15 characters

Admin Password change

To change an administrator password, in **Current Password** value field write a current password. Next in appropriate value field **New Password** write your new password and confirm it at **Re-type Password** value field.

User Password		
Name	Value	Description
New Password	<input type="text"/>	0..15 characters
Re-type Password	<input type="text"/>	0..15 characters

Admin Password		
Name	Value	Description
Current Password	<input type="text"/>	0..15 characters
New Password	<input type="text"/>	0..15 characters
Re-type password	<input type="text"/>	0..15 characters

User Password – a user password change (login: user),
User has access to the device Home page only.

New Password – a user new password,

Re-type Password – a user new password confirmation,

Admin Password – an administrator password change (login: admin, has access to the device all configurations settings)

Current Password- current admin password

New Password – a new admin password

Re-type Password – a new admin password confirmation

Services configuration

The device allows to choose suitable services. To do that, a value of corresponding service has to be check marked and then activated by **Save** button.

Services		
Name	Value	Description
Enable User Password	<input checked="" type="checkbox"/>	
Enable Admin Password	<input checked="" type="checkbox"/>	
Enable Program Access	<input checked="" type="checkbox"/>	Is needed by TCPrel and 1 to 1 TCP connection.
Enable MODBUS TCP Server	<input checked="" type="checkbox"/>	
Enable SNMP	<input checked="" type="checkbox"/>	
Enable Destination Client	<input checked="" type="checkbox"/>	Allow module to send data to other device (1 to 1 TCP connection)
Enable Comm2Other Module	<input type="checkbox"/>	Enable Multicast P2P communication
Enable Inveo Dashboard	<input type="checkbox"/>	Enable control by Inveo Dashboard Website . Click here for additional info.
Enable TFTP Bootloader	<input checked="" type="checkbox"/>	Allow remote upgrade firmware by TFTP. For safety reasons, the option should be disabled.
Enable Remote Network Config.	<input checked="" type="checkbox"/>	Enable Remote Network Config by Inveo Discover Software.
Enable Graphic Mode Config	<input checked="" type="checkbox"/>	Enable coordinate graphics points config.
Disable LED	<input type="checkbox"/>	LED turns off after 5 minutes of pressing the service key.

Enable User Password – enables requirement for a user password,

Enable Admin Password – enables requirement for an admin password,

Enable Program Access – enables the connection to the device by PC software the communication frame is described in chapter 8.13),

Enable MODBUS TCP Server – enables access using MODBUS TCP protocol,

Enable SNMP – enables access using SNMP protocol,

Enable Destination Client- enables service of inputs/outputs status transmission (contact between the Lantick devices – bridge mode),

Enable Comm2Other Module – enables communication by multicast address (IP:224.0.23.12 port 3671), detailed description in chapter 8.3,

Enabling / disabling this service requires a device restart.

Enable Inveo Dashboard – enables control via cloud service <http://dash.inveo.com.pl>,

Enable TFTP Bootloader – enables a bootloader mode,

Enable Remote Network Config – enables remote configuration via Inveo Discoverer software,

Enable Graphic Mode Config – enables graphic mode configuration in the Map menu,

Disable LED – enables/disables the device LED diodes – after reset button is pressed, the LEDs will light for 5 minutes, then switch off.

Attention:

TFTP Bootloader ought to be disabled during normal work operation. It should be enabled for a firmware update only.

8 Control and communication

8.1 Control by software

The device can be controlled by:

- inbuilt www site,
- KNX/IP protocol,
- access service by Inveo Dashboard at <http://dash.inveo.com.pl> usługa dostępu.
- SNMP protocol,
- MODBUS TCP protocol,
- HTTP protocol,
- MS WINDOWS command line application,
- Linux application,
- **phone/ tablet with Android operating system.**

8.2 Peer to peer communication

The Lantick devices which feature inputs terminals are able to send information data to the device which features outputs terminals, so they can react to activation of input channel. As the device's one of input channels is activated, the device will communicate with other Lantick device which has outputs and will activate the chosen output channel. Peer to peer option is used in small-scale control systems.

Configuration:

The Lantick device which features inputs terminals, needs to be configured. In the *Network* tab, fill in Destination IP and Destination Port fields.

The Destination IP field represents IP address of the device with outputs terminals. Destination Port represents a number of a port, which is used for listening in Lantick destination device. It is 9761 by default.

Destination IP	<input type="text" value="192.168.111.16"/>	Address of other device to communicate (1 to 1 TCP connection)
Destination Port	<input type="text" value="9761"/>	Port to communicate

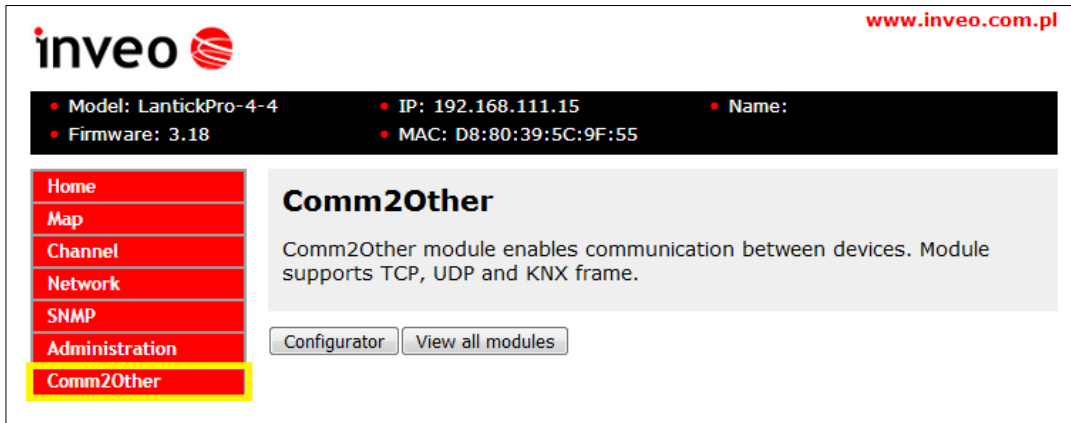
Next, in the *Channel* tab choose a 'destination channel', which will be switched on by activation of a given input channel.

Channel 1 - CH 1		
Name	Value	Description
Name	<input type="text" value="CH 1"/>	0..15 characters
Destination channel	<input type="text" value="Dest:4"/>	Select destination channel in 1 to 1 TCP connection
		<input type="button" value="Save"/>

8.3 Communications protocols

The Lantick devices can be connected into advanced control network. A fully connected network peer to peer communication is possible after setting up every connected device which is done in the *Comm2Other* tab. The Lantick devices have appropriate tools for such communication. It is possible to use following protocols:

- TCP
- UDP
- KNX
- HTTP GET



The screenshot displays the inveo web interface. At the top left is the inveo logo, and at the top right is the URL www.inveo.com.pl. Below the logo, a black bar contains device information: Model: LantickPro-4-4, IP: 192.168.111.15, Name: (empty), Firmware: 3.18, and MAC: D8:80:39:5C:9F:55. On the left side, there is a vertical navigation menu with red buttons for Home, Map, Channel, Network, SNMP, Administration, and Comm2Other (which is highlighted with a yellow border). The main content area is titled 'Comm2Other' and contains the text: 'Comm2Other module enables communication between devices. Module supports TCP, UDP and KNX frame.' Below this text are two buttons: 'Configurator' and 'View all modules'.

Important!

The Lantick device with inputs terminals is able to send messages to other devices. The messages can be set individually for every channel for various events (it could be short impulse, long active state, etc.) The Lantick devices with outputs terminals may react to received data and change status of the outputs.

8.4 KNX

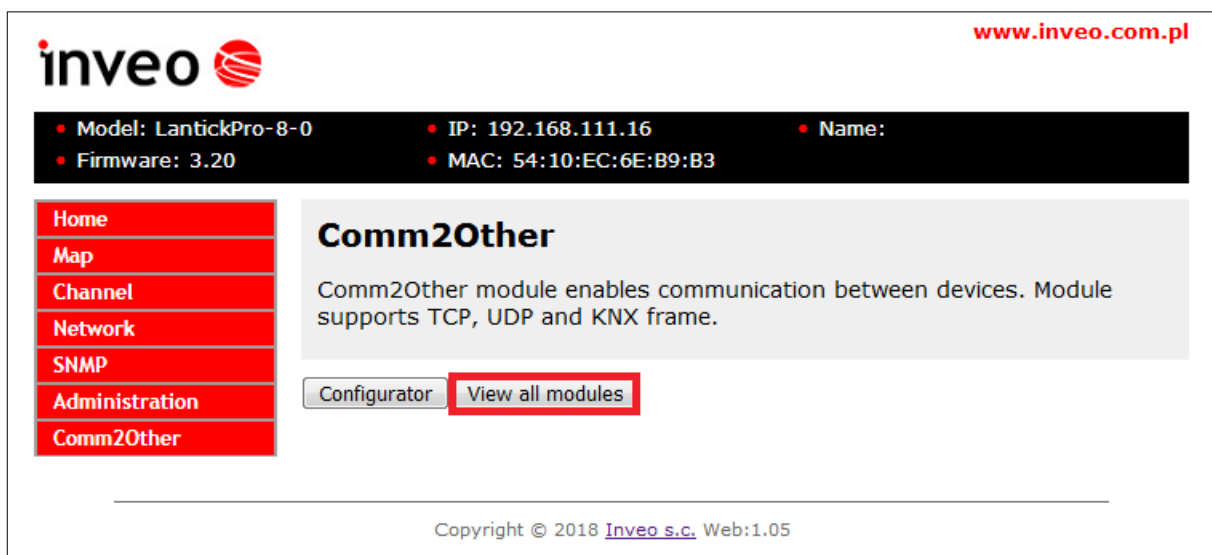
The Lantick device is equipped with a service protocol compatible with KNX-IP Routing mode. This protocol is designed to control home automation ("smart homes") and office space.

The network is built in a "peer to peer" topology without a dedicated host device, although there is a possibility to add such a device in more demanding solutions. Failure of one of the devices **does not cause standstill** of the entire system. Communication between the devices is done over the LAN packets on UDP multicast broadcast.

The configuration and operation is based on the principle that the selected receiving devices (e.g. relays connected to the lamp circuits, blinds) and triggers/actuators (inputs which are connected e.g. wall switches) are assigned to the common address. Each input channel has the command and the address of the group entered in the settings. The output channel may have groups assigned to each action (i.e. enable, disable, change status, enable with delay, shutter mode). Sending by the input stored group address with the command causes the reaction of all of the receivers that have this group address entered. Each input-output can have several different addresses, in addition inputs can send the address depending on various events, such as pressing a button, hold, release the button and send a predefined TCP, UDP and HTTP frame. The outputs can be connected in sections to control shutters. The system can be expanded with a central unit to visualize the building and for remote control.

Preview of all KNX devices

When building advanced KNX installation **View all modules** button comes in handy. This function scans LAN network and detects all Inveo devices which have active KNX protocol and compiles them in one table, sorting into groups.



The screenshot shows the Inveo web interface. At the top left is the Inveo logo, and at the top right is the URL www.inveo.com.pl. Below the logo is a black bar containing device information: Model: LantickPro-8-0, IP: 192.168.111.16, Name: (empty), Firmware: 3.20, and MAC: 54:10:EC:6E:B9:B3. On the left side, there is a vertical menu with red buttons for Home, Map, Channel, Network, SNMP, Administration, and Comm2Other. The main content area is titled "Comm2Other" and contains the text: "Comm2Other module enables communication between devices. Module supports TCP, UDP and KNX frame." Below this text are two buttons: "Configurator" and "View all modules", with the latter highlighted by a red box. At the bottom of the page, there is a copyright notice: "Copyright © 2018 Inveo s.c. Web:1.05".

The KNX groups configuration

A user can define groups by pressing *Configurator* button and writing suitable settings in groups window.

In the upper right corner of the window the following buttons are available:



Save data- saves changes

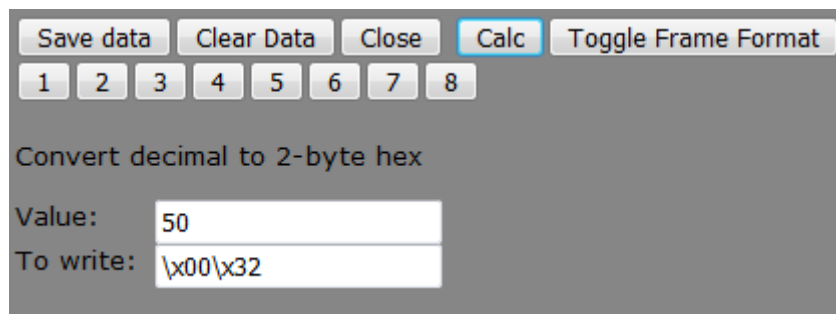
Clear data- clears current settings

Close- closes configuration window

Toggle Frame Format- toggles frame formats – ASCII code or hexadecimal values

1, 2, 3, 4, 5, 6, 7, 8- inputs/outputs navigation numbers

Calc – a calculator for conversion of time value from decimal to hexadecimal.



In the example above 5 seconds (value $50 * 0.1$ second rate = 5 seconds) is converted to 2-bit hexadecimal value. In this case a value `\x00\x32` has to be written to the proper field. Unique KNX address field is found at the page top. This KNX device address is seen by the other devices connected to a system.

Format of input data: `\xAB`, where

AB- value for the KNX command expressed in the hexadecimal system

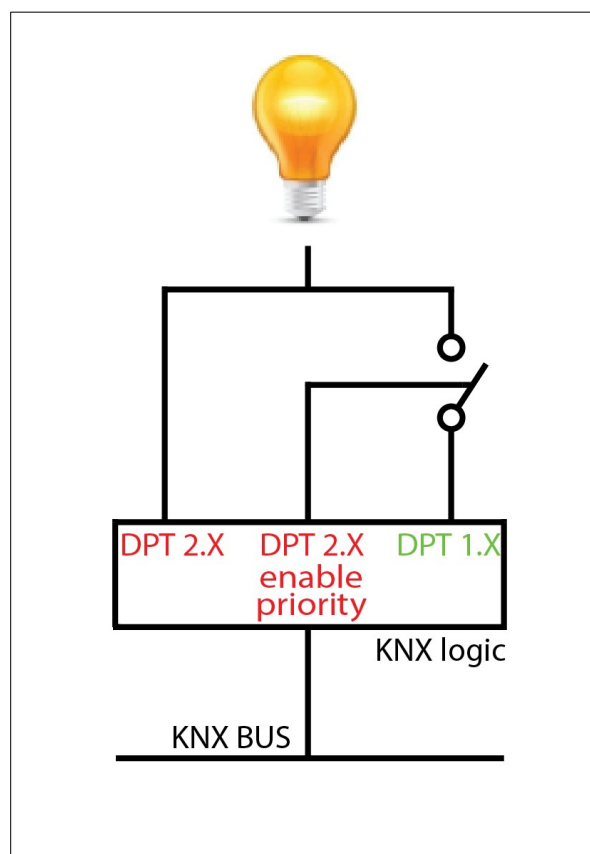
Control of output groups

The groups outputs control table:

Channel Out 1 [CH 1] ?				
ReadState: 31/7/255				
Function	Group 1	Group 2	Group 3	Group 4
On (DPT 1.001)	1/2/3	0/0/0	0/0/0	0/0/0
Off (DPT 1)	0/0/0	0/0/0	0/0/0	0/0/0
Invert (DPT 1.012)	0/0/0	0/0/0	0/0/0	0/0/0
Time	0/0/0	0/0/0	0/0/0	0/0/0
On Control (DPT 2.001)	0/0/0	0/0/0	0/0/0	0/0/0
Off Control (DPT 2)	0/0/0	0/0/0	0/0/0	0/0/0
Invert Control (DPT 2.012)	0/0/0	0/0/0	0/0/0	0/0/0
Scene Control (DPT 18.001)	0/0/0	0/0/0	0/0/0	0/0/0

In the groups control table, a user can choose between basic function (DPT 1.xxxx) and functions with priority (DPT 2.xxxx). The function with priority has ability to block the basic functions. It is useful e.g. when:

- there is a fire outbreak: all blinds have to be opened and we would like to prevent other users to close them,
- a light has to be switched on or off and we would like to lock it in this state so other users can't change it.



The priority function setup.

ReadState – an address which allows readout of current status by e.g. external software.

The address accepts values in the following format and range: 0-31/0-7/0-255.

All following functions can be used with one of outputs.

On (DPT 1.001) – enable output

\x00 – sending this command will **switch off** output

\x01 – sending this command will **switch on** output

Off (DPT 1)- opposite function to **On (DPT 1.001)**. Used, when switching off one output in the same time when second output is going to be switched on.

Invert (DPT 1.012) - invert output state

\x00 – sending this command will do nothing

\x01 – sending this command will invert output state

Time – the output is temporarily switched on or off

\x00 – a relay is switched off

\x01 TonMSB TonLSM ToffMSB ToffLSB

Example:

A channel is enabled for 60 seconds: \x01\x02\x58

On Control (DPT 2.001)- function which enables outputs with **priority**. The function have four different values:

\x00 – sending this command will **switch off** relay – same like in **On (DPT 1.001)**

\x01 – sending this command will **switch on** relay – same like in **On (DPT 1.001)**

\x02 – sending this command will **switch off** output **with priority** (lock flag, will block DPT1.X control)

\x03 – sending this command will **switch on** output **with priority**(lock flag, will block DPT1.X control)

Reset the lock flag can be done with command \x00 or \x01 only.

Off Control (DPT 2.001)- is the function **with priority** opposite to **On Control (DPT 2.001)** function.

Invert (DPT 2.012)- invert output state **with priority**.

\x00 – the command won't invert the output state, same like in **Invert (DPT 1.012)**

\x01 – sending this command will invert output state, same like in **Invert (DPT 1.012)**

\x02 – sending this command will block output **with priority** in its current state (lock flag, will block DPT1.X control)

\x03 – sending this command will invert output state **with priority** (lock flag, will block DPT1.X control)

Reset the lock flag can be done with command \x00 or \x01 only.

Scene Control (DPT 18.001) - Scene choice set up

For example, in newly written 1/1/1 group (in Scene control field, write a group – 1/1/1), outputs no. 1,2,3 set up have to be recorded to memory using \x81 command and for readout \x01 command.

Read/write a scene command consists of: \xab where:

“a” is:

0 value – which reads a scene from the device memory

8 value – which writes a scene to the device memory

“b” is:

number of a consecutive scene (maximum 15 scenes can be recorded and their values range from 0 to F in hex).

Example:

\x82 – writes a scene under no. 2

\x0A – reads a scene from no. 11

Scene Control is useful for example in case when permanent repeated actions take place e.g.

- after end of a work shift, work stations have to be powered off and all the devices outputs switched off

- in selected rooms ceiling, wall lights and power to working stations have to be switched on at set time e.g 555, then the scene control or Inveo Cronos time controller would do the task.

Each channel can control up to four groups (Group 1-4) which will respond in a mode of selected function after receiving appropriate command.

Outputs table – (e.g. for a blind, a shutter):

Shutter 1 (Out 1+2) [CH 1]				
ReadState: 31/7/255				
Function	Group 1	Group 2	Group 3	Group 4
Step (DPT 1.007)	0/0/0	0/0/0	0/0/0	0/0/0
Up/Down (DPT 1.008)	0/0/0	0/0/0	0/0/0	0/0/0
Stop (DPT 1)	0/0/0	0/0/0	0/0/0	0/0/0
Up/Down with Stop (DPT 1)	0/0/0	0/0/0	0/0/0	0/0/0
Gate (DPT 1)	0/0/0	0/0/0	0/0/0	0/0/0
Step Control (DPT 2.007)	0/0/0	0/0/0	0/0/0	0/0/0
Up/Down Control (DPT 2.008)	0/0/0	0/0/0	0/0/0	0/0/0
Stop Control (DPT 2)	0/0/0	0/0/0	0/0/0	0/0/0
Up/Down with Stop Ctrl(DPT 2)	0/0/0	0/0/0	0/0/0	0/0/0
Gate Control(DPT 2)	0/0/0	0/0/0	0/0/0	0/0/0
Blind Control (DPT 3.008)	0/0/0	0/0/0	0/0/0	0/0/0
Percentage 0-100% (DPT 5.001)	0/0/0	0/0/0	0/0/0	0/0/0
Percentage 0-255% (DPT 5.004)	0/0/0	0/0/0	0/0/0	0/0/0
Scene Control (DPT 18.001)	0/0/0	0/0/0	0/0/0	0/0/0
reserved	0/0/0	0/0/0	0/0/0	0/0/0
reserved	0/0/0	0/0/0	0/0/0	0/0/0

Step (DPT 1.007)- a blind move up/down in one step function

\x00 – up

\x01 – down

Up/Down (DPT 1.008)- a blind open/close function

\x00 – opens a blind (fully), the recurring command won't stop opening of the blind

\x01 – closes a blind (fully), the recurring command won't stop closing of the blind

Stop (DPT 1)- a blind stop moving function

\x00 – stop moving

\x01 – stop moving

Up/Down with Stop (DPT 1)- a blind open/close function with ability to stop the movement – when the command is send once, it will open/close a blind. Sending it again will stop the blind in desired position.

\x00 – opens a blind/stops a blind

\x01 – closes a blind/stops a blind

Gate (DPT 1)- this function opens/closes a blind in succession, with ability to stop. Each time the command is sent it opens/closes a blind/gate, a consecutive command sent before the action is completed switches off the output and stops a blind/gate as result.

\x00 – stop shutter/gate

\x01 – open/close shutter/gate – if the command is sent again before process is finished, the output will disengage

Step Control (DPT 2.007) is the **Step (DPT 1.007)** function with priority. This function increases/decreases a blind opening in steps.

\x00 – steps up

\x01 – steps down

\x02 – steps up **with priority** (lock flag, will block DPT1.X control)

\x03 – steps down **with priority** (lock flag, will block DPT1.X control)

Reset the lock flag can be done with command \x00 or \x01 only.

Up/Down Control (DPT 2.008)- is the **Up/Down (DPT 1.008)** function with priority.

This function opens/closes a blind

\x00 – opens a blind (in full), sending the command again won't stop opening of the blind

\x01 – closes a blind (in full) sending the command again won't stop closing of the blind

\x02 – opens a blind (in full) **with priority** (lock flag, will block DPT1.X control)

\x03 – closes a blind (in full) **with priority** (lock flag, will block DPT1.X control)

Reset the lock flag can be done with command \x00 or \x01 only.

Stop Control (DPT 2)- is the **Stop (DPT 1)** function with priority.

This function stops a blind

\x00 – stops a blind

\x01 – stops a blind

\x00 – stops a blind **with priority** (lock flag, will block DPT1.X control)

\x01 – stops a blind **with priority** (lock flag, will block DPT1.X control)

Reset the lock flag can be done with command \x00 or \x01 only.

Up/Down with Stop Ctrl (DPT 2)- is the **Up/Down with Stop (DPT 1)** function with priority. This function opens/closes a blind with ability to stop -The single command opens/closes a blind, sending the command again will stop the blind.

\x00 – opens/stops a blind

\x01 – closes/stops a blind

\x02 – opens/stops a blind **with priority** (lock flag, will block DPT1.X control)

\x03 – closes/stops a blind **with priority** (lock flag, will block DPT1.X control)

Reset the lock flag can be done with command \x00 or \x01 only.

Gate Control (DPT 2) is the **Gate (DPT 1)** function with priority. This function opens/closes a blind/gate in succession, with ability to stop. Each time the command is sent it opens/closes a blind/gate, a consecutive command sent before the action is completed switches off the output and stops a blind/gate as result.

\x00 – stops a blind/gate

\x01 – opens/stops/closes a blind/gate

\x02 – stops a blind/gate **with priority** (lock flag, will block DPT1.X control)

\x03 – opens/stops/closes a blind/gate **with priority** (lock flag, will block DPT1.X control)

Reset the lock flag can be done with command \x00 or \x01 only.

Blind Control (DPT 3.008)- function which open/close/stop a blind

\x00 – stops a blind

\x07 – opens a blind

\x0F – closes a blind

Percentage 0-100% (DPT 5.001)- this function opens a blind at percentage (0-100%). It is set out at percentage from 0 to 100%, so for example to open a blind at 50 percent, a value 50 has to be written in hexadecimal system (50dec=32hex).

\xCC – partially opens a blind, where CC is a percentage (0-100%) set up in hexadecimal system

Value 0-255 (DPT 5.004)- this function opens a blind as a percentage (0-100%). For example if a blind has to be open at 70%, a value is calculated by multiplying 70% by 255, which equals to 178.5. Next **round down** the value to 178 and change it to hexadecimal value 178dec=B2hex.

255- the blind is completely open

\xCC- partially opens a blind, calculated as percent of 255 and given in the hexadecimal system.

Scene Control (DPT 18.001) - Scene choice set up

For example, in newly written 1/1/1 group (in Scene control field, write a group - 1/1/1), outputs no. 1,2,3 set up have to be recorded to memory using \x81 command and for readout \x01 command.

Read/write a scene command consists of: \xab where:

“a” is:

0 value – which reads a scene from the device memory

8 value – which writes a scene to the device memory

“b” is:

number of a consecutive scene (maximum 15 scenes can be recorded and their values range from 0 to F in hex).

Example:

\x82 – writes a scene under no. 2

\x0A – reads a scene from no. 11

Control settings

Inputs table:

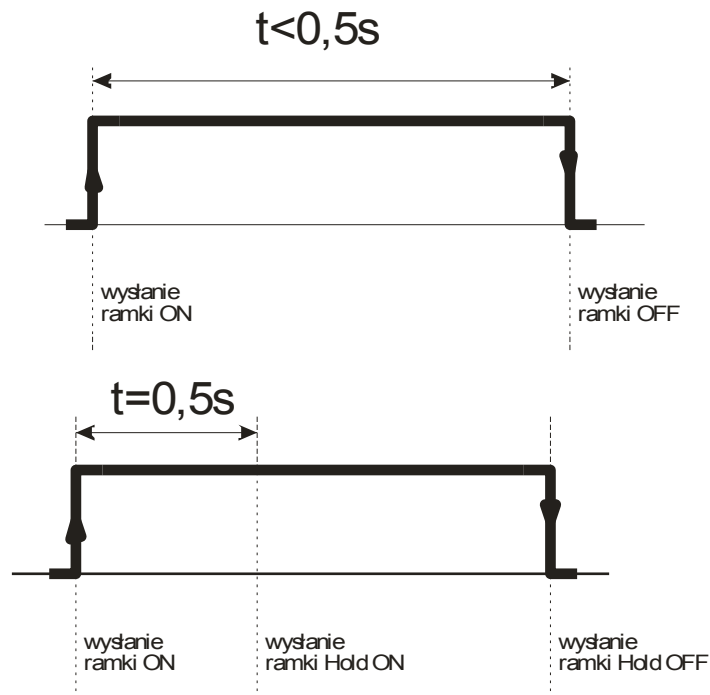
Function	Protocol	IP	Port	KNX Group	Frame	Try!
On 0	Disable	0.0.0.0	0	0/0/0		Try!
Off 0	Disable	0.0.0.0	0	0/0/0		Try!
Hold On 0	Disable	0.0.0.0	0	0/0/0		Try!
Hold Off 0	Disable	0.0.0.0	0	0/0/0		Try!

ReadState- an address which allows readout of current status by e.g. external software)
The address accepts values in the following format and range: 0-31/0-7/0-255.

Functions specifying the condition at which point the given command will be sent:

On 0- function detecting voltage raising edge (the function will trigger at instant when high voltage is detected at an input/ when a switch is engaged)

Off 0- function detecting voltage falling edge, but triggered only when high voltage last **less than 0.5 second** (function triggers when the voltage fade away /at instant when a switch is disengaged)



Hold On 0- Function detecting voltage raising edge at an input if it last **at least 0.5 second**

Hold Off 0- function detecting voltage falling edge, but triggered only when **high voltage** at input last **more than 0.5 second**. If the time is less, the function won't trigger.

The above functions provide additional option that one channel can respond in different ways depending of a chosen group.

Example:

Lantick 0-8

A mono stable wall switch is connected to input no 1 (channel 1) in which **Hold On 0** function is assigned to 1/1/2 group and **Off 0** function is assigned to 1/1/1 group.

LanTick 8-0

Output no 3 is assigned to a blind in a living room and output no 5 to a light in the room. The output 3 is assigned to 1/1/2 group and **Up/Down Control** function is set up, so the blind will open and close.

The output 5 is assigned to 1/1/1 group, has **Invert** function set up to it, so it will switch it on or off.

This configuration works as follows:

Short click on the switch will light up a bulb in the living room, but holding longer the same switch will close/open a blind.

Table *Protocol* column:

User can choose following connection protocols:

- Disable – control turned off
- TCP – TCP protocol
- UDP –UDP protocol – multicast
- KNX – KNX protocol
- HTTP GET- HTTP protocol, GET method

Table *IP* column:

Here write IP of chosen device.

Table *Port* column:

When using HTTP GET standard, the value is 80.

For TCP/UDP protocol there is a port which listens to the remote device and the value is by default: 9761.

Table *KNX Group* column:

When using KNX protocol, a user can specify the groups which are linkage to outputs control.

Table *Frame* column:

The control commands are written in these fields.

***Try!* button:**

With this you can try simulation of the frame commands/data as you enter them in the inputs table.

8.5 KNX addressing

KNX communication is based on broadcasting data for separate groups. **Outputs channels** react to the groups defined in **inputs channels**. The groups may be assigned to various outputs.

KNX groups addressing is done in following format: a/b/c

a: main group 0-31 (standard 0-15)

b: middle group 0-7

c: subgroup 0-255

e.g.: 4/0/8

Example group assignment:

Place	Controlled device	Function
1-kitchen	0-lights	0-main lights
2-living room	1-sockets	1-aux lights
3-boiler room	2-shutters/blinds	2-north shutter
4-garage	3-air conditioning	3-south shutter

Group creation:

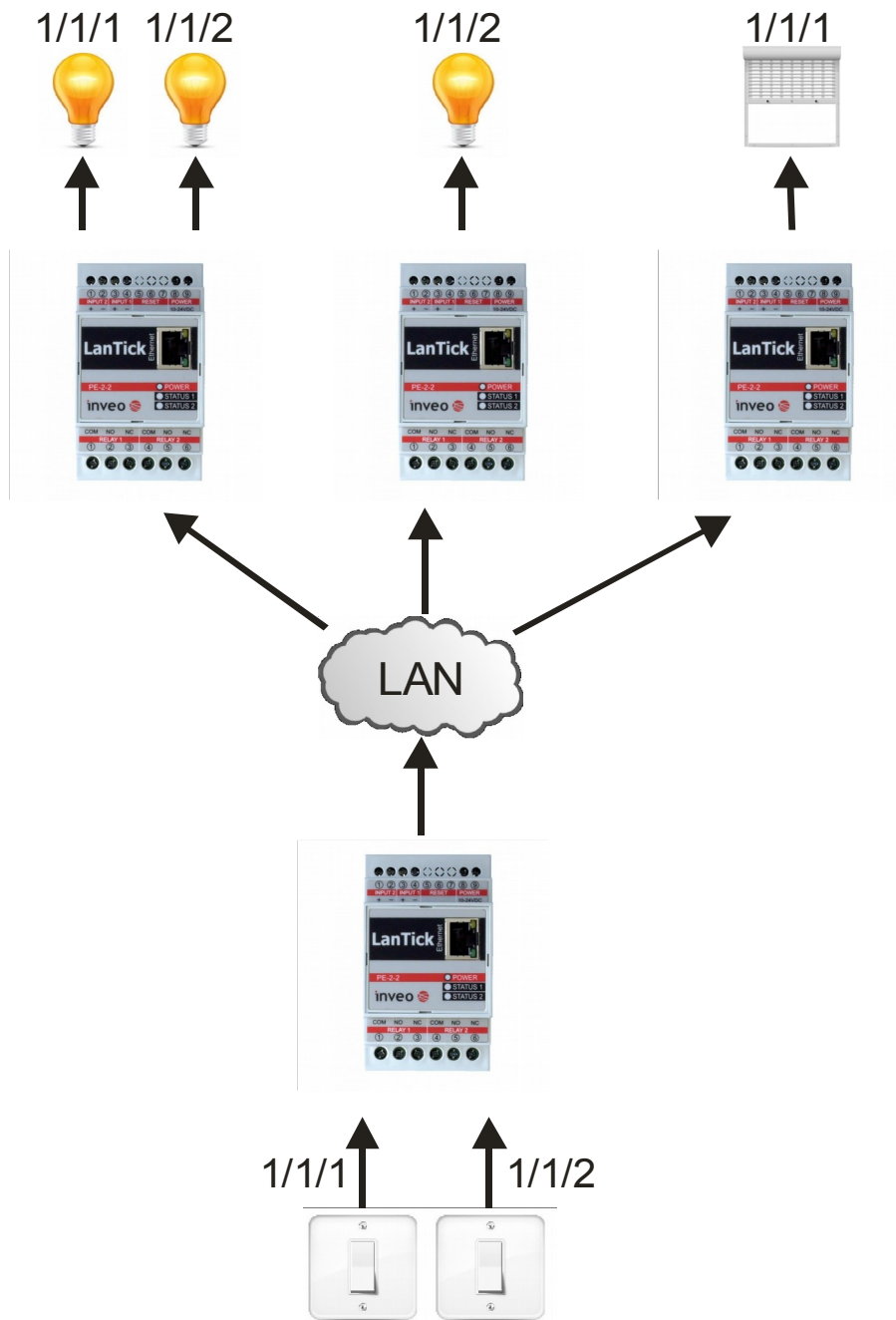
1/0/0 – control of main lights in the kitchen

3/0/0 – control of main lights in the boiler room

4/2/3 – control of south shutter in the garage

2/2/2 – control of north shutter in the living room

Example of the device connections:



8.6 TCP/UDP protocol

In the *Comm2Other* configuration tab you can choose between a TCP and UDP client. A Lantick device with given IP address, which operates as a server, listens to other device on specific port and this device may send a message to it.

Example 1 (TCP):

Lets create network consisting of a Lantick-8-0 (8 outputs) as a server and a Lantick-0-8 as a client.

A data frame has to be sent from the Lantick-0-8 at the time of triggering its output no 3, by holding a switch for longer than 0.5 second. It results in an output no 7 in the Lantick-8-0 to be turn on.

Lantick-8-0 (server):

address IP:192.168.111.16
port TCP/UDP: 9761

Comm2Other Lantick-0-8:

Channel 3:

Function	Protocol	IP	Port	KNX Group	Frame
Hold On 0	TCP	192.168.111.16	9761	0/0/0	\x0F\x01\x06\x01\x01\x00\x00\x00\x00\x18

The frame is written in hexadecimal system:

\x0F\x01\x06\x01\x01\x00\x00\x00\x00\x18

Example 2 (UDP):

Lets create network consisting of a Lantick-8-0 (8 outputs) as a server and a Lantick-0-8 (8 inputs) as a client.

A data frame has to be sent from the Lantick-0-8 at the time of switching off its output no 7, by holding a switch shorter then 0.5 second. It results in an output no 5 in the Lantick-8-0 to be turn on.

Lantick-8-0 (server):

address IP:192.168.111.16
port TCP/UDP: 9761

Comm2Other Lantick-0-8:

Channel 7:

Function	Protocol	IP	Port	KNX Group	Frame
Off 0	UDP	192.168.111.16	9761	0/0/0	\x0F\x01\x04\x01\x01\x00\x00\x00\x00\x16

The frame is written in hexadecimal system:

\x0F\x01\x04\x01\x01\x00\x00\x00\x00\x16

The TCP frame has the same format as UDP frame. The difference between them is that TCP protocol features additionally data transmission control.

The TCP and UDP protocols frame is described in chapter 8.13.

8.7 HTTP GET protocol

By choosing HTTP GET protocol at *Comm2Other* tab, there is possibility to control the other devices which handle HTTP protocol. In that case, appropriate HTTP protocol commands will be sent depending of the device's input current state. Afterwards, the device with chosen IP address will respond.

Example (HTTP GET):

Lets have a network system which have Lantick-8-0 (8 outputs) and Lantick-0-8 (8 inputs).

The network works as follows:

If input no. 2 in Lantick-0-8 is enabled, corresponding output no. 2 in Lantick-8-0 will also be enabled. In case input no. 4 is enabled, state of output no. 4 will invert.

Next, by switching off input no. 1 in the Lantick-0-8, all of the Lantick-8-0 outputs will be disabled except output no. 6 which will be enabled.

Remember, that when using HTTP protocol, occasional validation with user name and password is needed. **Attention!** Login and password can be up to 30 characters long. The validation data has to be written in a new frame line.

Lantick-8-0

address IP:192.168.111.16

port HTTP: 80

login: admin

password: admin00

Comm2Other Lantick-0-8:

Channel 1:

Function	Protocol	IP	Port	KNX Group	Frame
Hold Off 0	HTTP GET	192.168.111.16	80	0/0/0	/stat.php?set=00100000 admin:admin00

/stat.php?set=00100000 – setting all outputs. The outputs numbers are given in inverted order.

admin:admin00 – validation login:password

Channel 2:

Function	Protocol	IP	Port	KNX Group	Frame
On 0	HTTP GET	192.168.111.16	80	0/0/0	/stat.php?on=3 admin:admin00

/stat.php?on=2 – switch on output no 2

admin:admin00 – validation login:password

Channel 4:

Function	Protocol	IP	Port	KNX Group	Frame
On 0	HTTP GET	192.168.111.16	80	0/0/0	/stat.php?inv=4 admin:admin00

/stat.php?inv=4 – invert output state no.4

admin:admin00 – validation login:password

More HTTP GET commands in chapter 8.12.

8.8 Control by using the Inveo dashboard

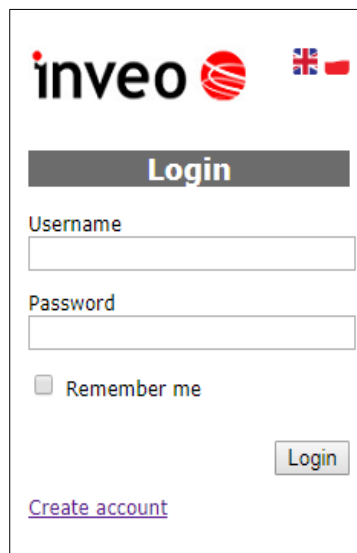
The Inveo dashboard is a control dashboard at <http://dash.inveo.com.pl> site, which allows a user control of the device outputs as well as find state of the device inputs.

After activation of **Enable Inveo Dashboard** service at *Administration* tab, the device is able to send current status of inputs/outputs to the server.

To have access to Inveo Dashboard, a user may create and activate the Dashboard account.

In a web browser address line write: <http://dash.inveo.com.pl>

Next select „Create account” hyperlink at the bottom.



The screenshot shows the Inveo Login page. At the top left is the Inveo logo, and at the top right is a flag icon. Below the logo is a dark grey bar with the word "Login" in white. Underneath are two input fields: "Username" and "Password". Below the password field is a checkbox labeled "Remember me". At the bottom right is a "Login" button. At the bottom left is a link "Create account".

In the new window please fill up all required fields and check mark reCAPTCHA mark box.



The screenshot shows the Inveo Register form. At the top left is the Inveo logo, and at the top right is a flag icon. Below the logo is a dark grey bar with the words "Register form" in white. Underneath are several input fields: "Name:", "Surname:", "Login*:", "Password*:", "Re-type password*:", "E-mail address*:", and "Re-type E-mail address*:". Below these is a checkbox labeled "Read-only account". At the bottom left is a checkbox labeled "Nie jestem robotem" (I am not a robot). To its right is the reCAPTCHA logo and text "reCAPTCHA Prywatność - Warunki". At the bottom center is a "Register" button. At the bottom left is a link "Back to login".

When the form has been filed, select "Register" button. An email with a confirmation link will be sent at the registration address.

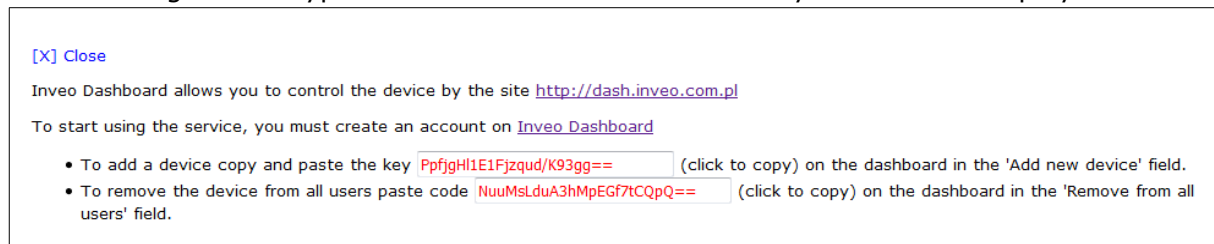
After login to the account, the devices which have to be seen and controlled, require to be added in the INVEO Dashboard service.



Please, select "Add device" button. The window for inserting Lantick device key will appear. The key readout can be found at *Administration* tab.



After clicking on the hyperlink a window with the necessary data will be displayed.



In order to add new device, copy and paste the key from first line. To delete a device, copy and paste the key from second line.

8.9 The device control by MS Windows command line

The device can be controlled in MS Windows command line using following syntax:

Windows: TCPRel.exe

Parameter	Description
-out=[1-2]	A number of the set up output
-in=[3-4]	A number of the set up input -in=3 for input no. 1 -in=4 for input no. 2
-host=[HOST]	The device address IP
-port=[PORT]	The device port no.
-on -off	An output is engaged or disengaged
-writecounter=0-4228250625	A counter state set up
-readcounter	A counter readout
-verb	Verbose mode
-stat	Current status of an input/output

Examples:

A relay no. 1 is switched on, the device address is 192.168.111.15 and listening port is 9761:

```
TCPRel -out=1 -host=192.168.111.15 -port=9761 -on
```

An input no. 1 counter reset:

```
TCPRel -host=192.168.111.15 -port=9761 -in=1 -writecounter=0
```

To set up of an input's no. 1 counter to value 123:

```
TCPRel -host=192.168.111.15 -port=9761 -in=1 -writecounter=123
```

To read an input's no. 1 counter value:

```
TCPRel -host=192.168.111.15 -port=9761 -in=1 -readcounter
```

To check status of an input no. 2:

```
CPRel -host=192.168.111.15 -port=9761 -in=2 -stat
```


8.10 Control in Linux command line

The device can be controlled by Linux OS terminal command line.

Syntax: ./TcpRel.exe [Parameters]

Parameter	Description
-o [1 - 2]	Number of output to set up:
-i [3-4]	Number of input to set up: -i 3 for input no. 1 -i 4 for input no. 2
-h [HOST]	IP address of the device
-p [PORT]	The device's port
-s [0,1]	Engage or disengage output
-w 0-4228250625	Setting up counter value
-r	Readout of counter value
-l	Displays of input/output current state

Examples:

Lets engage relay no. 1, the device IP is 192.168.111.15 and listening port is 9761:

```
./tcprel -o 1 -h 192.168.111.15 -p 9761 -s 1
```

Counter no.1 reset:

```
./tcprel -h 192.168.111.15 -p 9761 -i 1 -w 0
```

Counter no.2 value set up to 123:

```
./tcprel -h 192.168.111.15 -p 9761 -i 4 -w 123
```

Readout of counter no.1:

```
./tcprel -h 192.168.111.15 -p 9761 -i 1 -r
```

Check out of input no.2 state:

```
./tcprel -h 192.168.111.15 -p 9761 -i 2 -l
```

8.11 Communication with the device by MODBUS TCP protocol

Protocol MODBUS TCP is used to listen on a port 502.

The protocol can be switched on at *Administration->Enable MODBUS TCP Protocol* tab.

The device supports following MODBUS functions:

- 0x01 Read Coils,
- 0x03 Read Holding Register,
- 0x05 Write Single Coil,
- 0x06 Write Single Register,
- 0x0F Write Multiple Coils,
- 0x10 Write Multiple Registers.

Registers contents are described in the following tables:

MODBUS TCP - Holding Registers

Register no.	Name	R/W	Description
1	T1On	R/W	Engage time of output no.1 (*100ms)
2	T1Off	R/W	Disengage time of output no.1 (*100ms)
3	Rel1Mode	R/W	Mode of work for output no.1: 1 – Static 2 – Toggle 3 – TimeBase
4:5	Counter1	R/W	Value of counter no.1 in 32 bits
6-10		R/W	As above for channel 2
...		R/W	As above for channels 3-15
76-80		R/W	As above for channel 16
4000	T1On	R/W	Engage time of output no.1 (*100ms)
4000-4007	TxOn	R/W	Engage time of output no.x (*100ms), x=2:8
4008	T1Off	R/W	Disengage time of output no.1 (*100ms)
4009-4015	TxOff	R/W	Disengage time of output no.x (*100ms), x=2:8
4016	Rel1Mode	R/W	Mode of work for output no.1: 1 – Static 2 – Toggle 3 – TimeBase
4017-4023	RelxMode	R/W	Mode of work for output no.x: x=2:8 1 – Static 2 – Toggle 3 – TimeBased
4028-2029	Counter1	R/W	Value of counter no.1 in 32 bits
4030-4043	Counterx	R/W	State of an input's counter no. x x=2:8

MODBUS TCP - Coils

Register no.	Name	R/W	Description [Output channel/Input channel]
1	On1	R/W	Engaging output 1/ Input 1 status
2-16	Onx	R/W	Engaging output x/ Input x status x=2:16
17	Out1	R	Output 1 coil status/ Input 1 status
18-32	Outx	R	Output x coil status/ Input x status x=2:16
1000	On1	R/W	Engaging output 1/ Input 1 status
1001-1007	Onx	R/W	Engaging output x/ Input x status x=2:8
1008	Out1	R	Output 1 coil status/ Input 1 status
1009-1015	Outx	R	Output x coil status/ Input x status x=2:8

8.12 Communication with the device using HTTP protocol

The LanTick device can be controlled using HTTP protocol. Suitable HTTP protocol commands can be sent depending of the device's current state. Afterwards, the device with chosen IP address will respond.

To read current state of the device, a user may refer to sub-page <http://192.168.111.15/stat.php> using a web browser.

It is also available through <http://deviceIP/status.xml> page. Resource file status.xml is **read only** and doesn't need a password.

The file doesn't include name of the device.

File XML contains following data:

```
<response>
<prod_name>Lantick-PE-2-2</prod_name>
<user_name>
<out>000000000000000001</out>
<on>000000000000000001</on>
<in>000000000000000000</in>
<counter1>166</counter1>
<counter2>7</counter2>
<counter3>22</counter3>
<counter4>2</counter4>
<counter5>3</counter5>
<counter6>3</counter6>
<counter7>2</counter7>
<counter8>2</counter8>
<counter9>0</counter9>
<counter10>0</counter10>
<counter11>22</counter11>
<counter12>0</counter12>
<counter13>2</counter13>
<counter14>0</counter14>
<counter15>0</counter15>
<counter16>1</counter16>
<insim/>
</response>
```

Section	Description
<prod_name> Lantick-PE-2-2 </prod_name>	Type of the device. In this case – Lantick-PE-2-2.
<user_name/>	Device name defined by user
<out>000000000000000001</out>	Output state (enabled/disabled) In this example OUT 1 is active
<on>000000000000000001</on>	Output state (astable mode)
<in>000000000000000000</in>	Input state (enabled/disabled)
<counter1>0</counter1> <counterx>0</counterx>	Counter inputs for x=2:16

The **LanTickPro** device **has feature** to **control shutters**.

Command	Description
<code>http://nr_ip/stat.php?on=x</code>	Enable output. x=output number:
<code>http://nr_ip/stat.php?off=x</code>	Disable output. x=output number:
<code>http://nr_ip/stat.php?inv=x</code>	Invert output state. x=output number:
<code>http://nr_ip/stat.php? set=87654321</code>	Setting all of the outputs. Options: 1-enable 0-disable n-invert current state - -no change of state
<code>http://nr_ip/stat.php?cnt=x,y</code>	Set value of input counter x=input counter number y- value PE-2-2 x=3,4 PE-4-4 x=5,6,7,8 PE-0-8 x=1:8 PE-0-16 x=1:16
<code>http://nr_ip/stat.php? on=x&ton=y&toff=z&astab</code>	Set output to astable mode (cyclic enabling and disabling of an output) x= output number y- enable state time z- disable state time
<code>http://nr_ip/stat.php?on=x&bistab</code>	Set output to bistable mode x= output number
<code>http://nr_ip/stat.php? on=x&ton=y&toff=z</code>	Set output to timebased mode (single delay of enable state for fixed time) x= output number y- enable state time z- enable state delay time
<code>http://nr_ip/stat.php?rollup=x</code>	Open shutter x-shutter number PE-2-2 x=1 PE-4-4 x=1,2 PE-8-0 x=1,2,3,4 PE-16-0 x=1,2,3,4,5,6,7,8
<code>http://nr_ip/stat.php?rolldown=x</code>	Close shutter x- shutter number as above
<code>http://nr_ip/stat.php?rollus=x</code>	Open shutter and stop x- shutter number as above
<code>http://nr_ip/stat.php?rollds=x</code>	Close shutter and stop x- shutter number as above
<code>http://nr_ip/stat.php?rollstop=x</code>	Shutter stop x- shutter number as above

Command	Description
<code>http://nr_ip/stat.php?rollgate=x</code>	Open shutter—Stop—Close shutter x- shutter number as above
<code>http://nr_ip/stat.php?rollpos=x,y</code>	Open shutter x-shutter number y-percentage value of open shutter PE-2-2 x=1 PE-4-4 x=1,2 PE-8-0 x=1,2,3,4 PE-16-0 x=1,2,3,4,5,6,7,8
Only to Lantick modules with digital inputs	
<code>http://nr_ip/stat.php?c2o_on=x</code>	Send the frame defined in the Comm2Other tab (x – channel from 0) For the On frame – chapter 8.4 x = channel number
<code>http://nr_ip/stat.php?c2o_off=x</code>	Send the frame defined in the Comm2Other tab (x – channel from 0) For the Off frame – chapter 8.4 x = channel number
<code>http://nr_ip/stat.php?c2o_hon=x</code>	Send the frame defined in the Comm2Other tab (x – channel from 0) For the Hold On frame – chapter 8.4 x = channel number
<code>http://nr_ip/stat.php?c2o_hoff=x</code>	Send the frame defined in the Comm2Other tab (x – channel from 0) For the Hold Off frame – chapter 8.4 x = channel number

Examples of the device control by HTTP protocol:

1.Enable output relay OUT2:

<http://192.168.111.15/stat.php?on=2>

2.Invert output relay OUT1:

<http://192.168.111.15/stat.php?inv=1>

3.Disable output relay OUT2:

<http://192.168.111.15/stat.php?off=2>

4.Enable output 1; invert output 2:

<http://192.168.111.15/stat.php?set=00000n1>

5.Setting counter value to 1234 for channel number 3:

<http://192.168.111.15/stat.php?cnt=3,1234>

6. Send frame defined in **Comm2Other** for **Hold On** channel no. 5:

192.168.111.15/stat.php?c2o_hon=4

8.13 TCP/UDP/IP protocols communication description

Communication data frame for PE-2-2, PE-8-0, PE-4-4, PE-0-8
(OEM and Lantick versions)

Byte	1	2	3	4	5	6	7	8	9	10	11		
Byte name	SOF	CMD	CH	Data 1	Data 2	Data 3	Data 4	Data 5	Data 6	Data 7	CRC	Return	
Command													
Set output	15	1	0-7	Mode [1-3]*	ON/OFF [0,1]	TON LSB*	TON MSB*	TOFF LSB*	TOFF MSB*	Restart state**	CRC	ON or NO	
Read channel parameters ***	15	2	0-7	x	x	x	x	x	x	x	CRC		
Set counter	15	10	0-7	[0:7]	[8:15]	[16:23]	[24:31]				CRC		
Read counter	15	11	0-7	[0:7]	[8:15]	[16:23]	[24:31]				CRC		
WWW control	15	99	x	1 -status 0x55 - off all other - on	x	x	x	x	x	x	CRC	ON or NO	
Read channels	15	100	x	x	x	x	x	x	x	x	CRC	CH7-CH0	Chx -2 bytes 1output state 2coil state or input state
Read channel name	15	101	0-7	x	x	x	x	x	x	x	CRC	String with name	
Read device name	15	200	x	x	x	x	x	x	x	x	CRC	String with name	

* only Lantick and PE-2-2

** only Lantick

Values in the tables are in the **decimal** system

Description	Value	State
ON/OFF	0	off
	1	on
MODE	1	static
	2	toggle
	3	1-pulse
CRC	Byte sum	

SOF	CMD	Ch	Data 1	Data 2	Data 3	Data 4	Data 5	Data 6	Data 7	CRC
15	2	0-7	Mode[1-3], 100-input	ON/OFF[0,1]	TON LSB	TON MSB	TOFF LSB	TOFF MSB	Restart state	CRC

The device by default listens at TCP/UDP 9761 port.

Example of data frames:

Enabling output no. 1 in static mode

	SOF	CMD	CH	D1	D2	D3	D4	D5	D6	D7	CRC
dec	15	1	0	1	1	0	0	0	0	0	18
hex	0x0F	0x01	0x00	0x01	0x01	0x00	0x00	0x00	0x00	0x00	0x12

Setting up value of a counter at counter input no. 2 to 100

	SOF	CMD	CH	D1	D2	D3	D4	D5	D6	D7	CRC
dec	15	10	1	100	0	0	0	0	0	0	126
hex	0x0F	0x0A	0x01	0x64	0x00	0x00	0x00	0x00	0x00	0x00	0x7E

8.14 TCP / UDP protocol in software control

LanTick devices can be controlled via TCP / UDP protocol using text commands. The module listens on port 9761. All commands available through the HTTP GET 8.12 protocol are supported.

On the device's website, go to the **Administration** tab, select **Enable Program Access** option and confirm with the **Save** button.

Send to port 9761 string. It always starts with '?' and then enter the appropriate command.

Examples:

- **?set=1110n01n**

Set all outputs at the same time. Outputs no. 2, 6, 7 and 8 will be enabled. Outputs no.1 and 4 will change their state to the opposite, while outputs 3 and 5 will be turned off.

- **?on=7**

Activation of output no.7.

- **?on=4&bistab**

Set the output number 4 to **bistable** mode and enable this output.

- **?on=2&ton=1200&toff=6000**

Set the output number 2 to **Time Based** mode and activation of output 2 after 10 minutes (6000 * 0.1sec) for 2 minutes.

- **?rolldown=1**

Close the shutter no.1.

- **?rollgate=3**

Open the shutter no.3 – Stop – Close the shutter.

9 Examples

9.1 Direct connection between the devices (bridge connection)

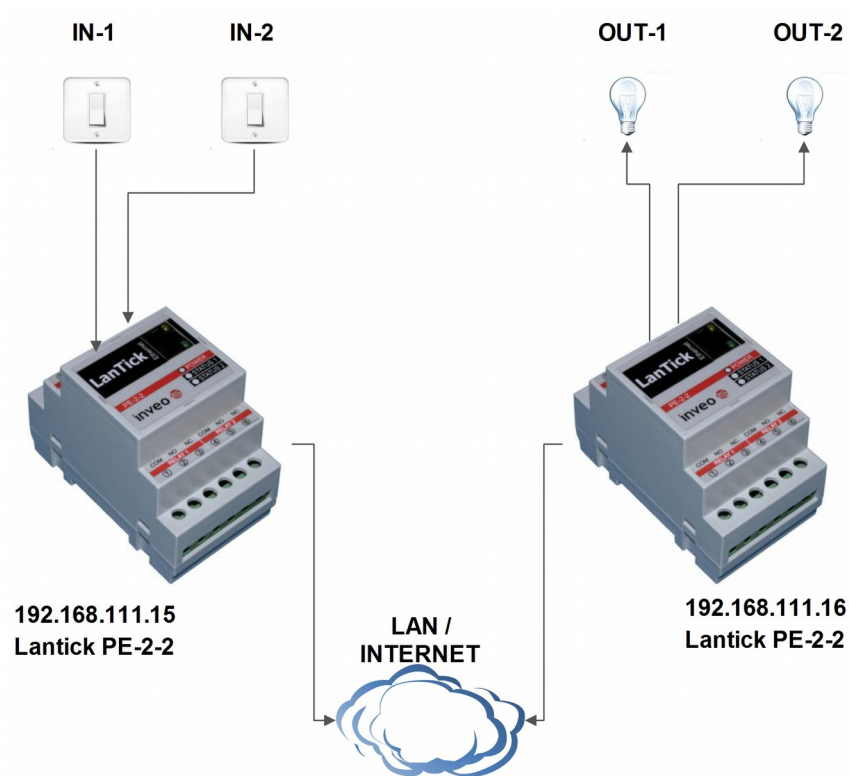
Example configuration:

For the output control module, set the IP address: 192.168.111.16.

In the second device, set the IP address 192.168.111.15 and:

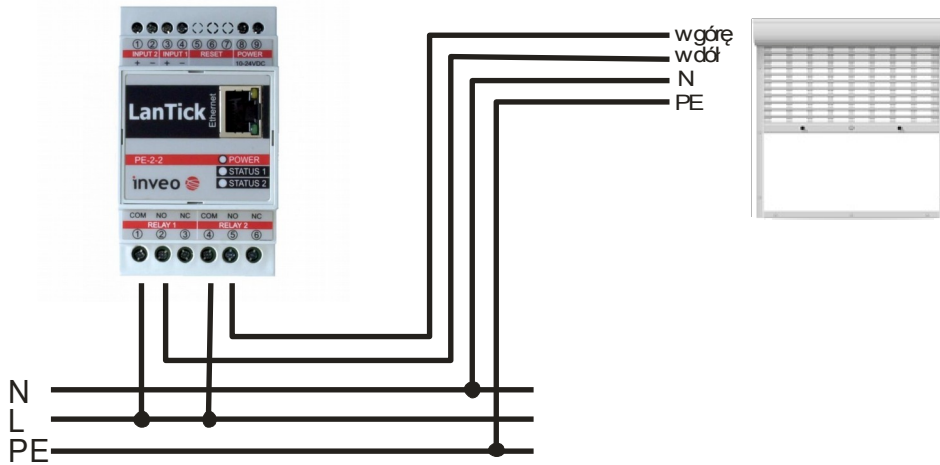
- in *Network* → *Destination IP* enter 192.168.111.16 port 9761
- in *Channel* → *Channel1* set Dest1,
- in *Channel* → *Channel2* set Dest2.

After triggering input 1 in the device 192.168.111.15, output 1 of the device 192.168.111.16 will be enabled and after triggering input 2 in 192.168.111.15 output 2 in 192.168.111.16 will be enabled.



9.2 Example connection of the PE-2-2 device to a shutter motor:

In the shutter control mode the PE-2-2 device automatically enables or disables relays that open/close a shutter.



To enable the device to correctly open and close the shutter, it is necessary to set the time needed to completely open/close the shutter. For PE-2-2 device, the time is set by changing **Full move Time** at *Channel* tab.

Home

This site presents the status of the device channel

Shutters

Name	Action	Position
CH 1		65%

Outputs

Name	On/Off	Coil State
CH 3		
CH 4		

10 Communication with the device from external network

If the controller is in the LAN network different than PC that connects to it, the redirection of ports is necessary.

Depending on the method of communication the network administrator ought to make changes, as different ports need to be redirected:

Using web interface:

- port TCP/UDP/IP 80

Using KNX/IP protocol:

- UDP 224.0.23.12 port: 3671

Computer software or customer application:

- port TCP/UDP/IP 9761

Using MODBUS TCP protocol:

- port TCP/IP 502

Using SNMP protocol:

- port UDP 161

11 Restoring factory defaults / Backup

Reset to default

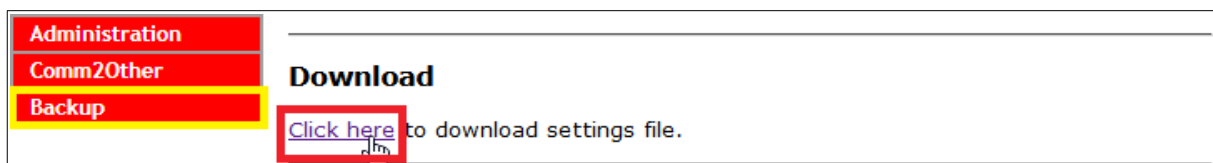
In order to restore the Lantick device to its factory defaults, press and hold reset button for at least 8 seconds.

With factory defaults restored, the device settings are as follows:

- IP address: 192.168.111.15
- IP mask: 255.255.255.0
- User name: admin
- Password: admin00

Backup / Restore user settings

To save user settings, download the file from the *Backup* tab.



In order to restore the saved settings, select the file backup.bin and press the **Upload** button.

12 Firmware update

The device has the ability to update the firmware. The software update program is provided as a *.bin file.

Warning! Incorrect use of the update feature may damage the reader. Make sure that undisturbed power is provided to the device for duration of programming.

To update the software:

- check the **Enable TFTP Bootloader** option, which is located in the Administration tab,
- run the Windows command line (Start-> Run enter 'cmd' and confirm with the Enter key),
- go to the directory where the .bin file is located
- enter the command:

```
tftp -i <address_ip_of the reader> PUT file.bin
```

where: <address_ip_of the reader> is the IP Address of the reader
file.bin – the file with the update program

Programming takes 1-2 minutes. End of programming confirms the message 'File Transferred'.

For correct functioning of the reader, after the update operation the „**Enable TFTP Bootloader**“ option has to be switched off.

Step-by-step instruction for firmware updates is available at www.inveo.com.pl.

The latest instructions and software are available on the site www.inveo.com.pl.