User manual
LanTickPro

PE-2-2

PE-4-4

PE-8-0

PE-0-8

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Soft >= v3.02

Dear Customer!

Thank you very much for choosing our product. Please carefully read this user manual as it contains most appropriate ways of dealing with this device, taking into account the basic principles of safety and maintenance. Please also keep the user guide that you can use it during subsequent use.

Manufacturer Liability!

The manufacturer is not liable for any damage caused by improper or incompatible use of this device, as well for any faults to the device resulting from improper use.

Contents:

1 Preliminary information

Before using the controller please read the user manual carefully and follow the instructions contained within!

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 controller.

Important information and guidelines.

Following this guidelines makes the use of the controller easier.

Attention: The appearance of the screen shots shown in this manual may differ slightly from the actual work with the module. The differences may relate to the size and font type and size of symbols. There are no differences in the content of the information.

2 The purpose of the controller

The LantickPro controller, depending on version is used to control electrical circuits using independent relays and/or to read binary opto-isolated inputs . Reading and changing the state of inputs/outputs is done using LAN (Local Area Network) and appropriate software delivered with the controller.

3 Warranty and liability of the manufacturer

The manufacturer provides a 2-year warranty on the controller. The manufacturer also provides post-warranty service for 10 years from the date of the introducing the controller 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,
- device is operated in accordance with the recommendations outlined in this manual,
- device is used as intended.

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

This controller doesn’t contain serviceable parts. The repairs can be done only by manufacturers approved repair service.

4 Safety guidelines

The module has been constructed 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 high quality plastic.

4.1 Power supply

The controller power supply must be in range of 10-24V AC or DC.

4.2 Storage, working environment and transportation

The controller has to be used in closed environments free from fumes and corrosive atmosphere.

Environmental conditions for storage:

- Temperature: + 5°C to +45°C,
- Relative humidity: <75%,
- Atmospheric pressure: 700 – 1060hPa.

Environmental conditions for use:
- Temperature: +10°C to +30°C,
- Relative humidity: 30% to 75%,
- Atmospheric pressure: 700 to 1060hPa.

Recommended conditions for transportation:
- Temperature: -10°C to +45°C,
- Relative humidity: 20 to 95%,
- Atmospheric pressure 700 to 1060hPa.

4.3 Installation and use of the controller

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

4.4 Utilization of the controller

When it becomes necessary to liquidate the device (eg, after the time of use), please contact the manufacturer or its representative, who are obliged to respond appropriately, ie, collecting the controller from the user. You can also ask the companies involved in utilization and / or liquidation of electrical or computer equipment. Under no circumstances should you place the device along with other garbage.

5 Controller description

5.1 General features

Overall view of the controller is shown on the picture below.

General overview LanTickPro PE-2-2

General overview LanTickPro PE-0-8

General Description				
Version	**No of Outputs**	**Output Type**	**No of Inputs**	**Input Type**
PE-2-2	2	Relay NO/NC	2	Opto-isolated/Shorting
PE-4-4	4	Relay NO	4	Opto-isolated
PE-8-0	8	Relay NO	0	N/A
PE-0-8	0	N/A	8	Opto-isolated

There are several ways to communicate with the controller:

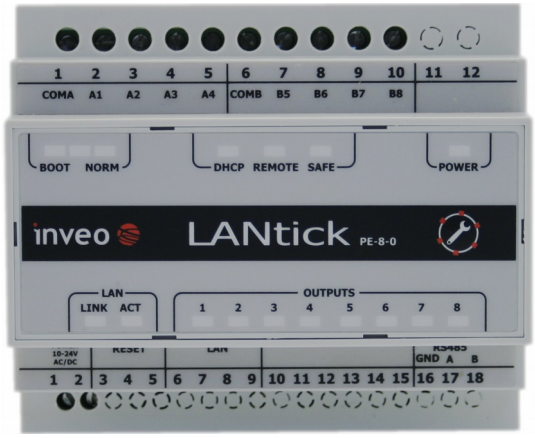
- using built in WWW server via any web browser,
- protocol KNX/IP
- Inveo Dashboard http://dash.inveo.com.pl
- protocol SNMP
- protocol MODBUS TCP
- protocol HTTP
- Windows command line,
- Linux application
- Mobile/tablet with Android OS

5.2 LED description

The LantickPro module has been equipped with several indicator LEDs

LED Overview PE-2-2

Module PE-2-2	
Name	**Description**
POWER	Indicating power supply connected to the module
Status 1	Input or Output can be assigned to this LED
Status 2	Input or Output can be assigned to this LED
LINK	Indicating LAN connection present
ACK	Indicating LAN connection present



LED Overview PE-8-0

MODULE PE-4-4	
Name	**Description**
POWER	Indicating power supply connected to the module
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 lost indicator (optional)
REMOTE	1 to 1 or dashboard communication indicator
DHCP	DHCP active indicator
NORM	Normal operating mode indicator
BOOT	Indicates that the module is in BOOTLOADER mode

MODULE PE-8-0	
Name	**Description**
POWER	Indicating power supply connected to the module
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 lost indicator (optional)
REMOTE	1 to 1 or dashboard communication indicator
DHCP	DHCP active indicator
NORM	Normal operating mode indicator
BOOT	Indicates that the module is in BOOTLOADER mode

MODULE PE-0-8		
Name	**Description**	**Name**
POWER	Indicating power supply connected to the module	
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 lost indicator (optional)	
REMOTE	1 to 1 or dashboard communication indicator	
DHCP	DHCP active indicator	
NORM	Normal operating mode indicator	
BOOT	Indicates that the module is in BOOTLOADER mode	

5.3 Technical specification:

Power supply voltage: 10-24VDC or AC
Power consumption: 1.5 – 4.2W
Relay outputs

Maximum working voltage: 250V AC, 30V DC,
Maximum current: 4A,
Relay output: NO (normally open),NC (normally closed),
Time to engage: 1ms,
Time to disengage: 5ms,
Modes of operation: Monostable, Bistable, One pulse, Shutter – two relays are used to control shutter motor;
Resolution of engage/disengage time: 100ms.

Opto-isolated inputs:

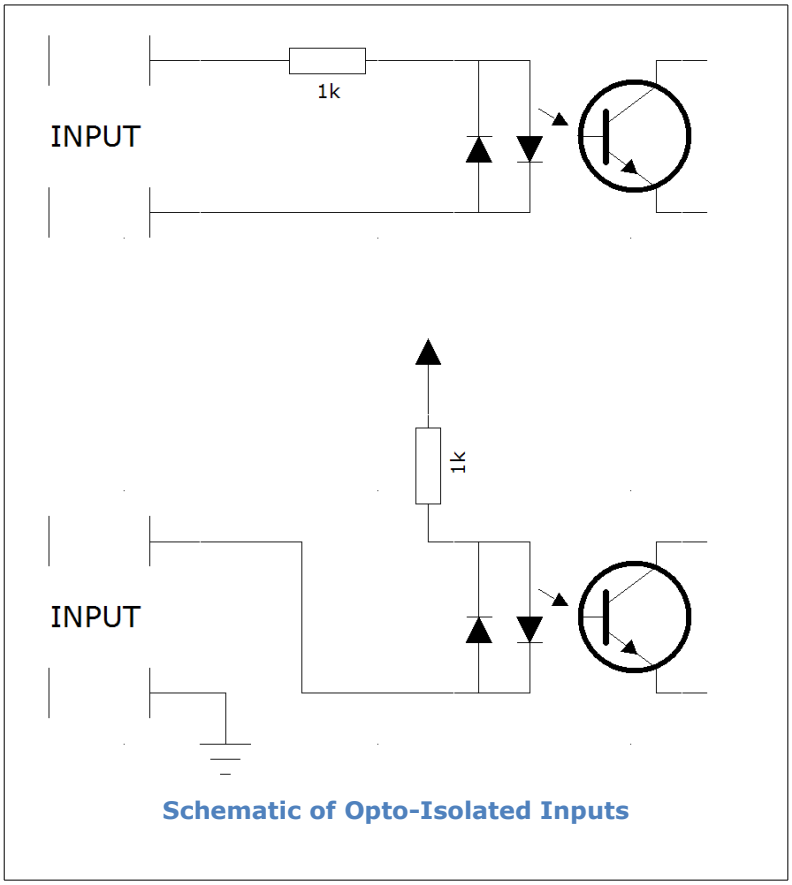
Maximum input voltage: 24V

LAN: Ethernet 1x10Mbps, RJ45

The firmware in the controller can be updated using LAN connection.

5.4 Binary Input (counter) opto-isolated

Typical binary input connection is shown below.
Top schematic describes fully opto-isolated input (PE-4-4, PE-0-8,PE-2-2).
Bottom schematic describes shorted input (PE-2-2). Type of input can only be set during production stage.
It is possible to set different types of input for different inputs (only PE-2-2).



Schematic of Opto-Isolated Inputs

The opto-isolated input is designed to accommodate input voltages between 10 and 24 V.

5.5 Module screw terminal description

The controller is equipped with screwed terminals used to connect input/output devices and power supply.

Screwed terminals overview

Input side of the module PE-2-2

Terminal number	Description	Function
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 DC 10-24V
9	Power	Power DC 10-24V

Output side of the module PE-2-2

Terminal number	Description	Function
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

Input side of the module PE-4-4, PE-8-0, PE-0-8

Terminal number	Description	Function
1	Power	Power DC 10-24V
2	Power	Power DC 10-24V
4	Reset	Reset button
8	LAN	LAN socket
16	RS485 -GND	RS485 GND connection
17	RS485 -A	RS485 A connection
18	RS485 -B	RS485 B connection

Output side of the module PE-4-4

Terminal number	Description	Function
1	COM A	Common terminal for Relays 1-4
2	A1	Output NO for Relay 1
3	A2	Output NO for Relay 2
4	A3	Output NO for Relay 3
5	A4	Output NO for Relay 4
6	COM B	Common terminal for Inputs 5-8
7	B5	Input 5
8	B6	Input 6
9	B7	Input 7
10	B8	Input 8

Output side of the module PE-8-0

Terminal number	Description	Function
1	COM A	Common terminal for Relays 1-4
2	A1	Output NO for Relay 1
3	A2	Output NO for Relay 2
4	A3	Output NO for Relay 3
5	A4	Output NO for Relay 4
6	COM B	Common terminal for Relays 5-8
7	B5	Output NO for Relay 5
8	B6	Output NO for Relay 6
9	B7	Output NO for Relay 7
10	B8	Output NO for Relay 8

Output side of the module PE-0-8

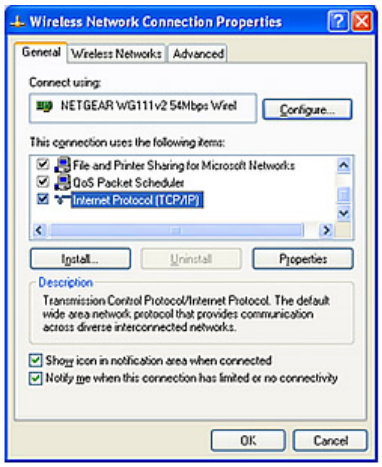
Terminal number	Description	Function
1	COM A	Common terminal for Inputs 1-4
2	A1	Input 1
3	A2	Input 2
4	A3	Input 3
5	A4	Input 4
6	COM B	Common terminal for Inputs 5-8
7	B5	Input 5
8	B6	Input 6
9	B7	Input 7
10	B8	Input 8

6 Controller configuration

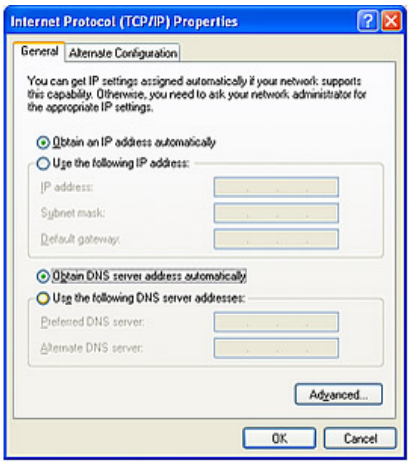
If using the controller for the first time it is needed to configure the controller as shown below

6.1 Changing the PC settings for controller configuration.

After connecting the controller to the network there is a need to change the PC setting. In order to do that navigate to: Start->Control Panel->Network connections.
Then right click on the current network connection and click „Properties".
The configuration screen as shown below should be visible on the screen:



Choose the „Internet Protocol (TCP/IP)" and press „Properties":



Tick the box „Use the following IP address" and enter:
IP address: **192.168.111.1**
Subnet mask: **255.255.255.0**
The rest of the setting can be left blank.
Press OK to accept the changes.

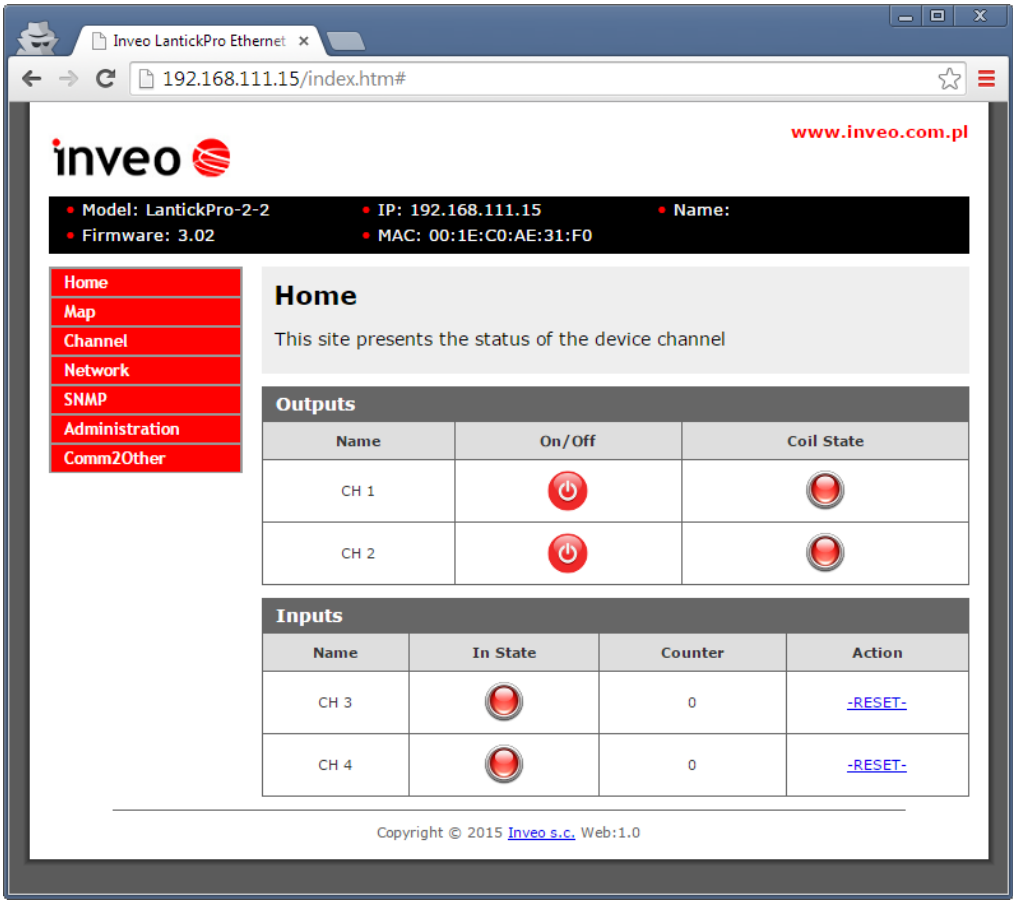
6.2 Configuration of the controller module through web browser

Start the web browser and enter the following address into address bar: **192.168.111.15**.

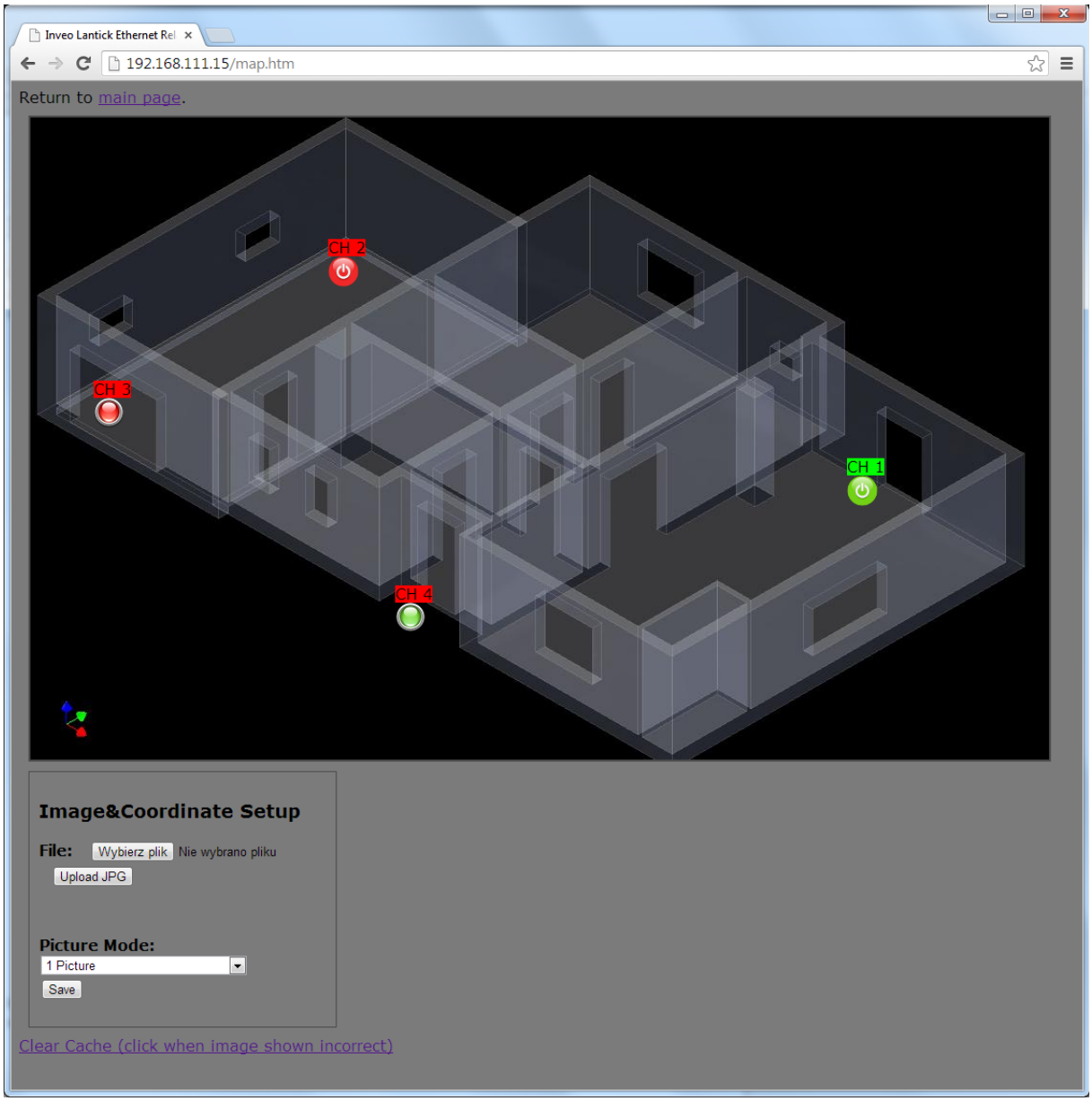
HOME TAB

This Tab displays following information
Model: Device type (LantickPro-2-2)
Firmware: Firmware version currently installed
IP: IP address
MAC: MAC address
Name: Name of the module assigned by the user

OUTPUTS Table
Name: Name of the channel assigned by the user (default CH1, CH2)
On/Off: Click to enable/disable associated relay output. Color of the icon represents current state of the output. Red – disabled, green - enabled.
Coil State: current state of the relay output. This state can be different than ON/OFF state ie. in bistable mode when relay is enabled and disabled by time interval set by Ton Toff times.
INPUTS table
Name: Name of the channel assigned by the user (Default CH3, CH4)
In State: current state of the input circuit (red color – input inactive, green – input active)
Counter: Input Counter
Action: Resets corresponding input counter



6.3 MAP Menu



Visualization

The device enables the presentation of relays states on the previously loaded background (the image in JPG format).To switch to graphics mode menu, select Map.

Clicking on the icon located on the image changes the state of the corresponding relay. Background color shows the output relay contact status (green - engaged, red - disengaged).

6.4 Visualization configuration

Background graphic and the coordinates of the outputs can be changed by the user.
To activate the ability to edit the coordinates please enable "Enable Graphic Mode Config" function in Administration menu and confirm using "Save" button.

There will be an "Image and coordinates setup" box displayed in the graphics section.

Background image change
The controller accepts files in JPG format. To change the background image, click the Browse button and select the correct picture from your computer. After selecting, click the Upload button and wait until the JPG file is loaded into the controller (at the time the cursor will have an hourglass icon). After loading refresh the browser (F5).

6.5 Changing the outputs coordinates

To change the position of the outputs, move the mouse to the desired output icon, press and hold the left mouse button and move to the desired location.
After moving the outputs , save new coordinates by clicking **Save** .

Important!
After changing coordinates and/or background image please un-tick the **Enable Graphic Mode Config** *option in Administration menu and save by pressing "Save" button.*

6.6 Double graphics mode

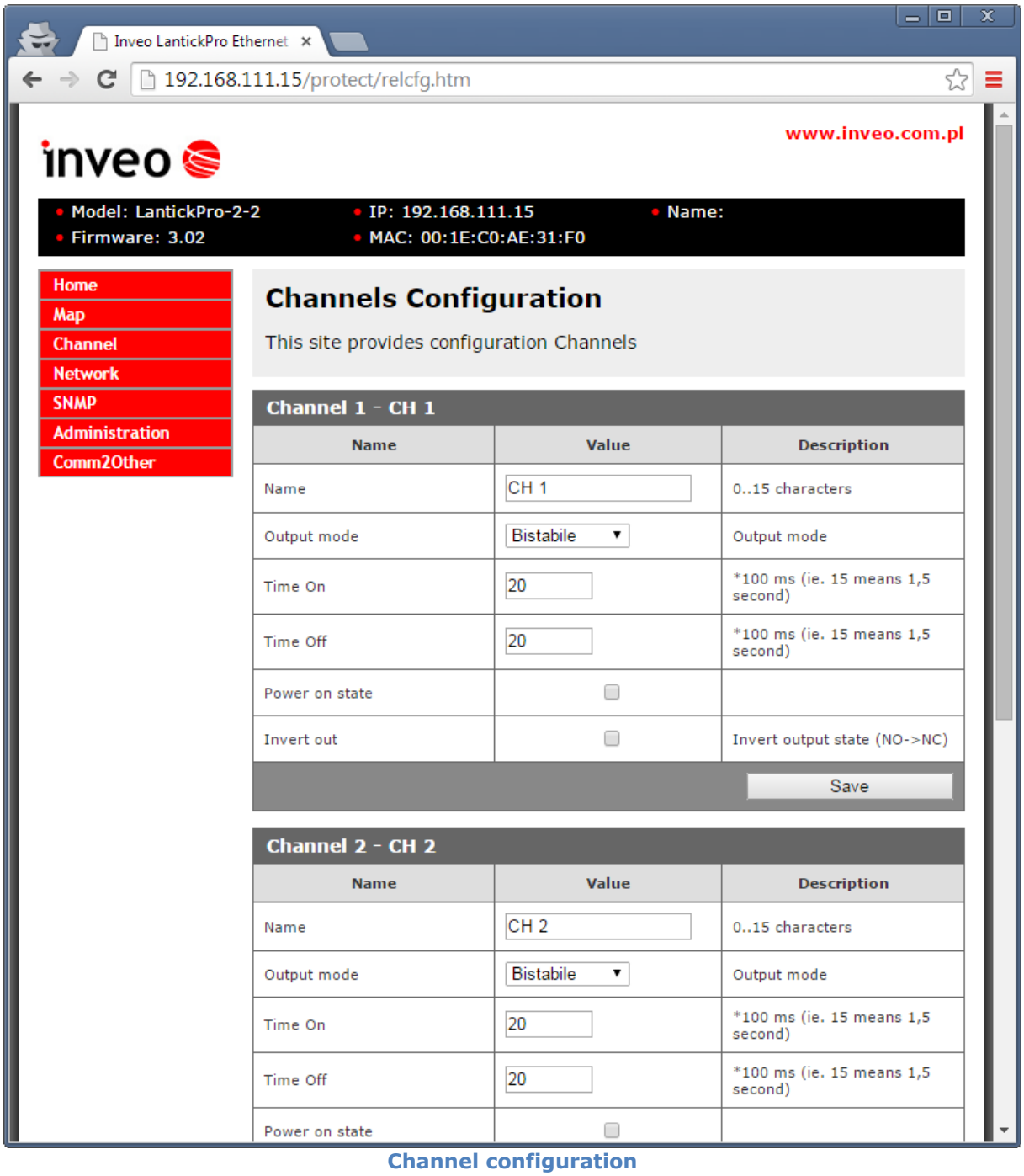
The device allows the user to load an image consisting of two images placed one under the other.
Activation of the selected channel automatically selects portion of the image currently displayed.

Channel selection box **Picture Mode** allows you to choose:

- **Picture 1** - single image
- **2 Pictures** - **Select by Channel X** - mode selection of two images with switching done by input or output No. X.

6.7 CHANNEL Menu

All channel configuration is located in on the **Channel** tab.

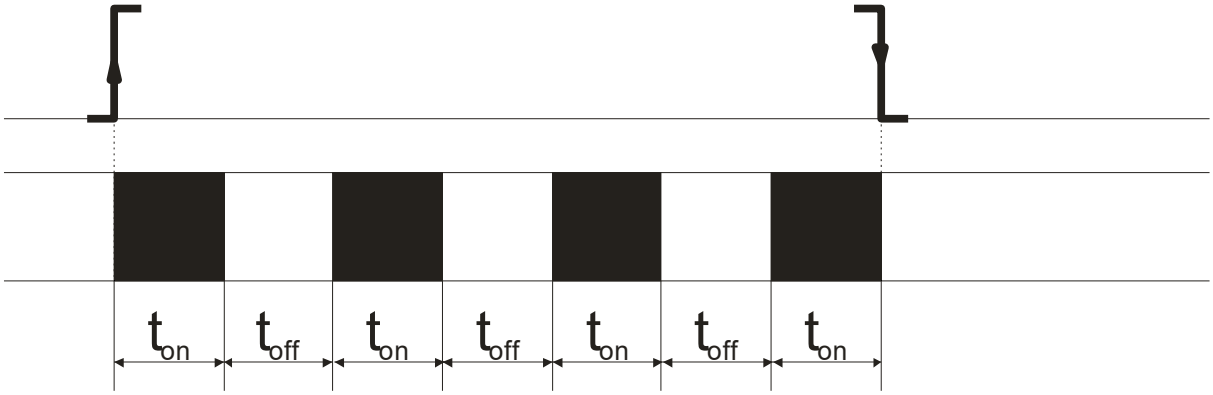


Channel configuration

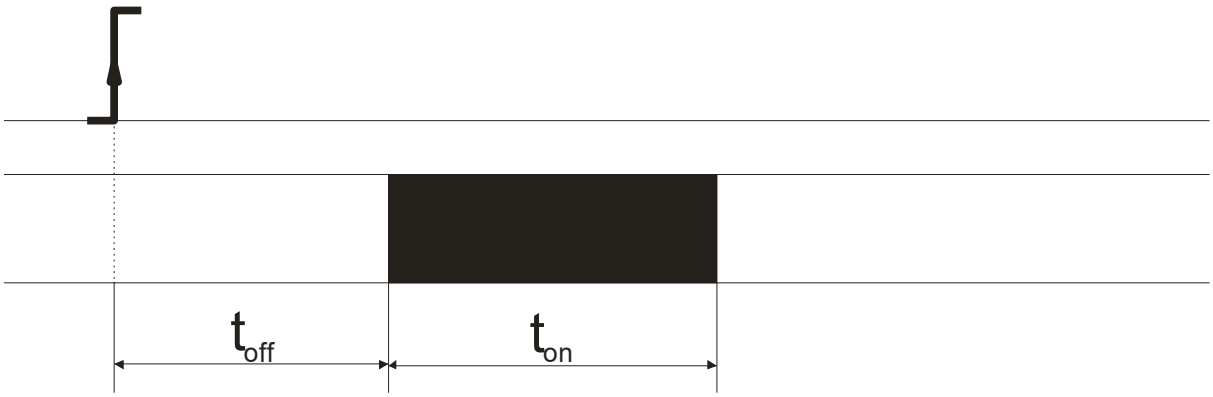
Output relay configuration

Each relay in the controller can work in four different modes of operation:

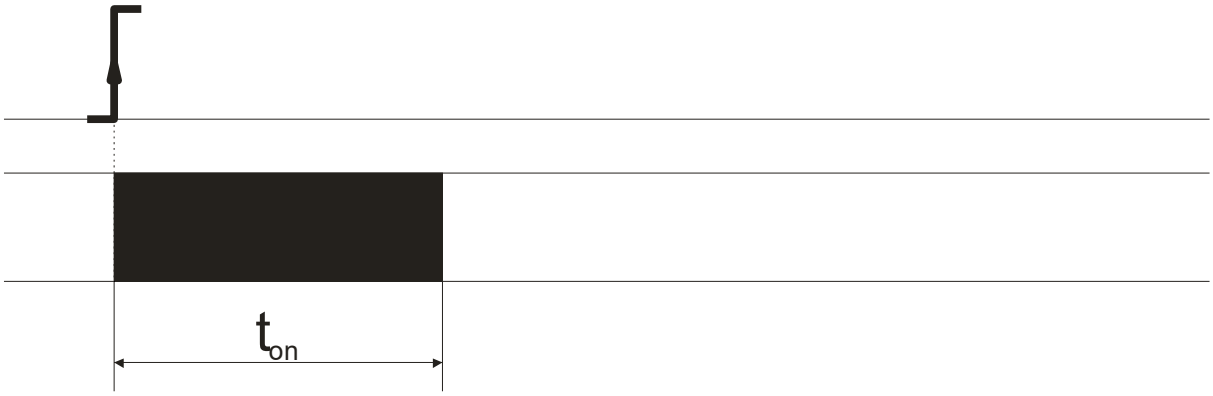
- **Bistable mode** – Relay output is either in On or Off state.
- **Astable mode** – the relay output periodically changing its state to engaged/disengaged. Engaged and disengage times are set by:
  - **Time On** – Engage time,
  - **Time Off** – Disengage time.



- **TimeBased mode** – One pulse mode
  If times $\mathbf{t_{on}}$ **>0** and $\mathbf{t_{off}}$**>0** then after triggering the output the relay will stay disengaged for $\mathbf{t_{off}}$ and then it will engage for $\mathbf{t_{on}}$ time



- If t_{on} **>0** and $t_{off=}$**0** then after triggering the output the relay will engage for t_{on} time.



- 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

Relay modes.

- **Shutter mode –** shutter control mode
- **Disable** – channel disabled

Shutter control mode logically joins two relays together in a group.
In this configuration the control module will not allow to enable both relays controlling the shutter
Module PE-2-2 can control one shutter.

Field **Name** contains name of one output assigned by the user – max 15 characters.

Field **Power on state** – state of the relay after power reset
Field **Invert out –** enables output inversion.

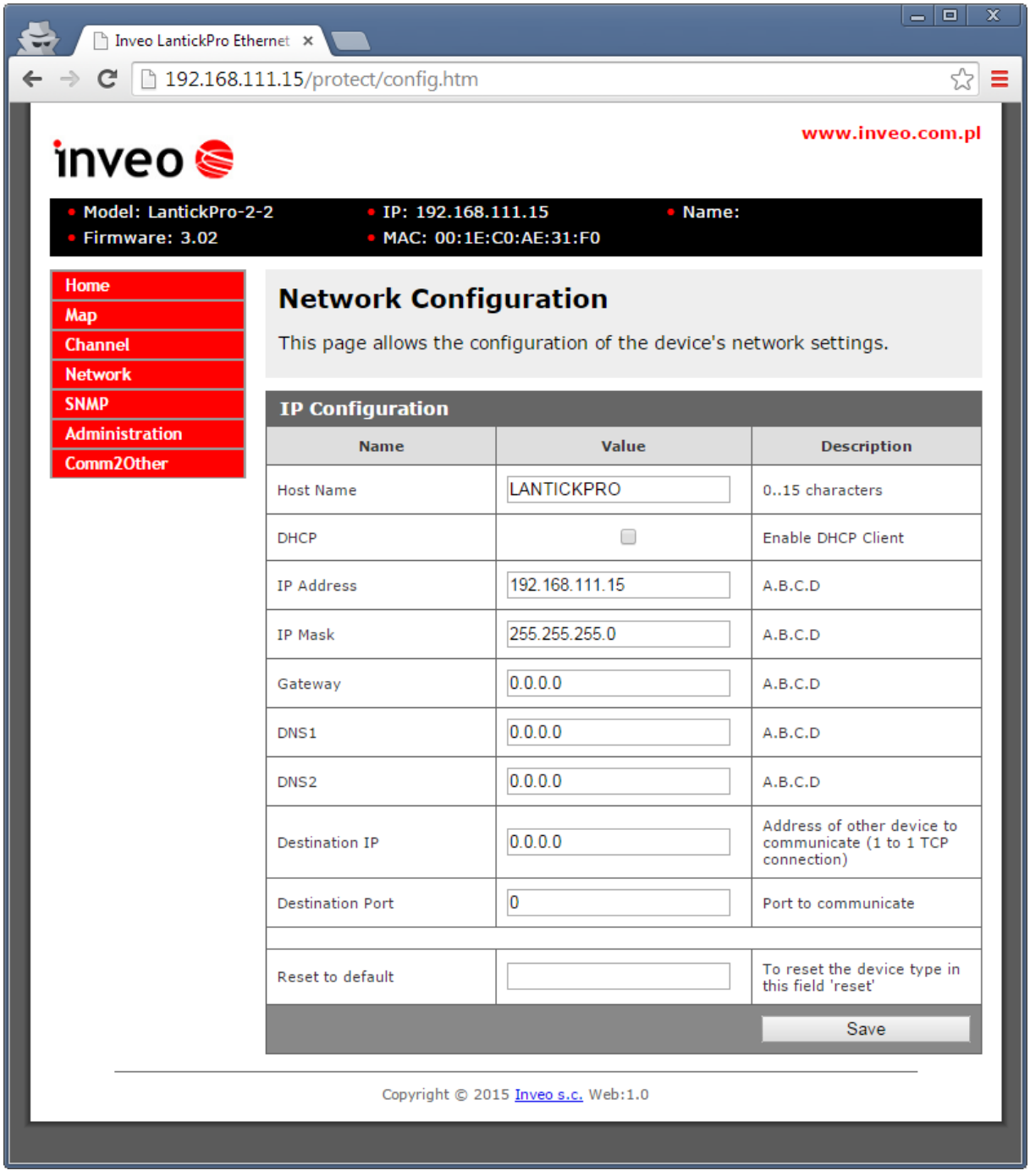
To apply changes press ***Save*** *button.*

Binary inputs configuration:
Input channels can be assigned with a name. Forwarding input state to external module can be set up as well.
Field **Name** – name of the channel max 15 characters

Field **Destination channel** – channel to trigger if connected with second module in 1 to 1 connection.

6.8 NETWORK Menu

Enables user to change LAN settings for the module



There are several fields used to configure the controller network settings:

- **Host Name** – NETBIOS host name of the module,
- **DHCP** – When this box is ticked the module will get its address from DHCP server,
- **IP Address** – IP address of the controller – when configured manually,
- **IP Mask** – Subnet mask of the controller,

- **Gateway** – Network gateway,
- ***DNS1, DNS2***– DNS servers addresses,
- **Destination IP** – Network address of the server that the controller will connect to - optional,
- **Destination Port** – Network port of the server that the controller can connect to.
- **Reset to default** – reset to factory defaults. Enter "reset" into this field and press Save button to reset the device to factory defaults.

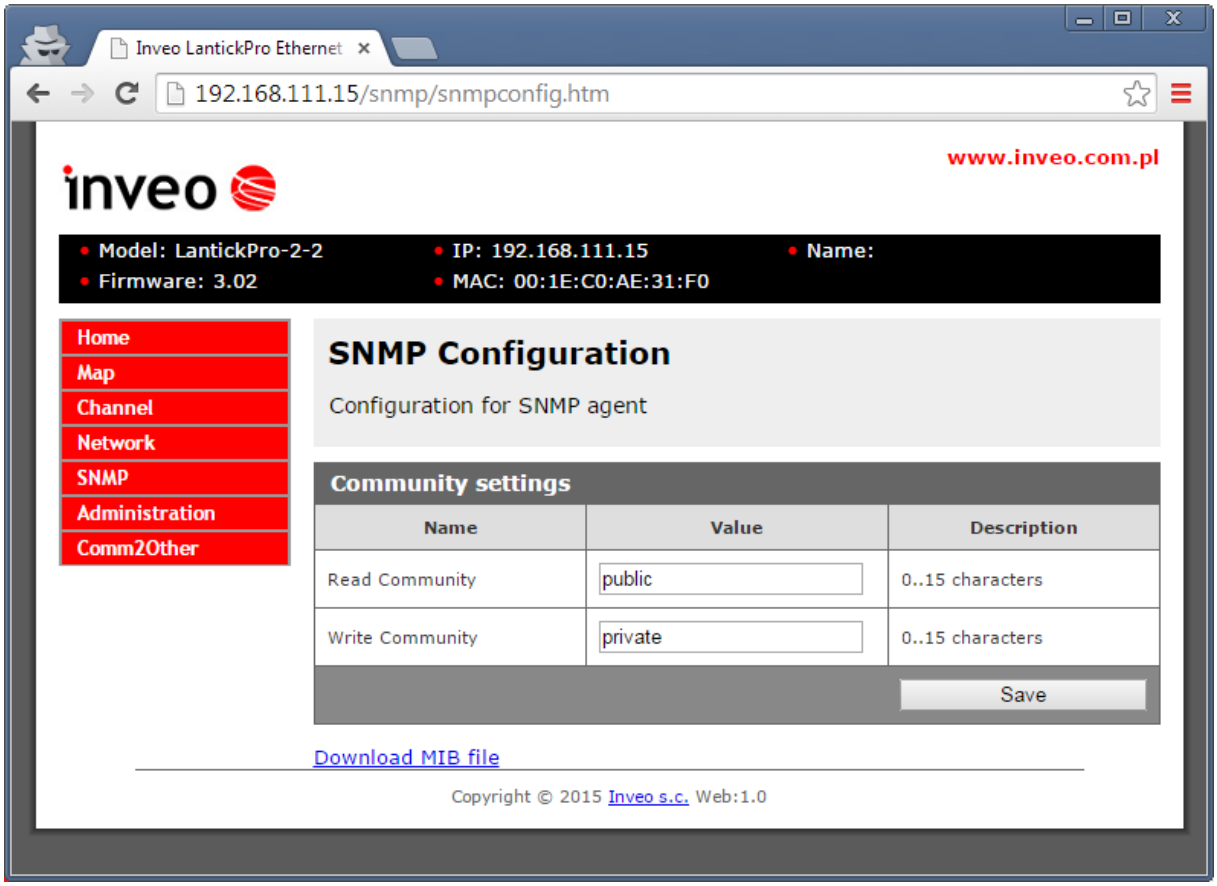
To apply changes press ***Save*** *button.*

6.9 SNMP Menu

The module is equipped with an SNMP v2c server.
To enable this feature go to Administration tab-> Enable SNMP.

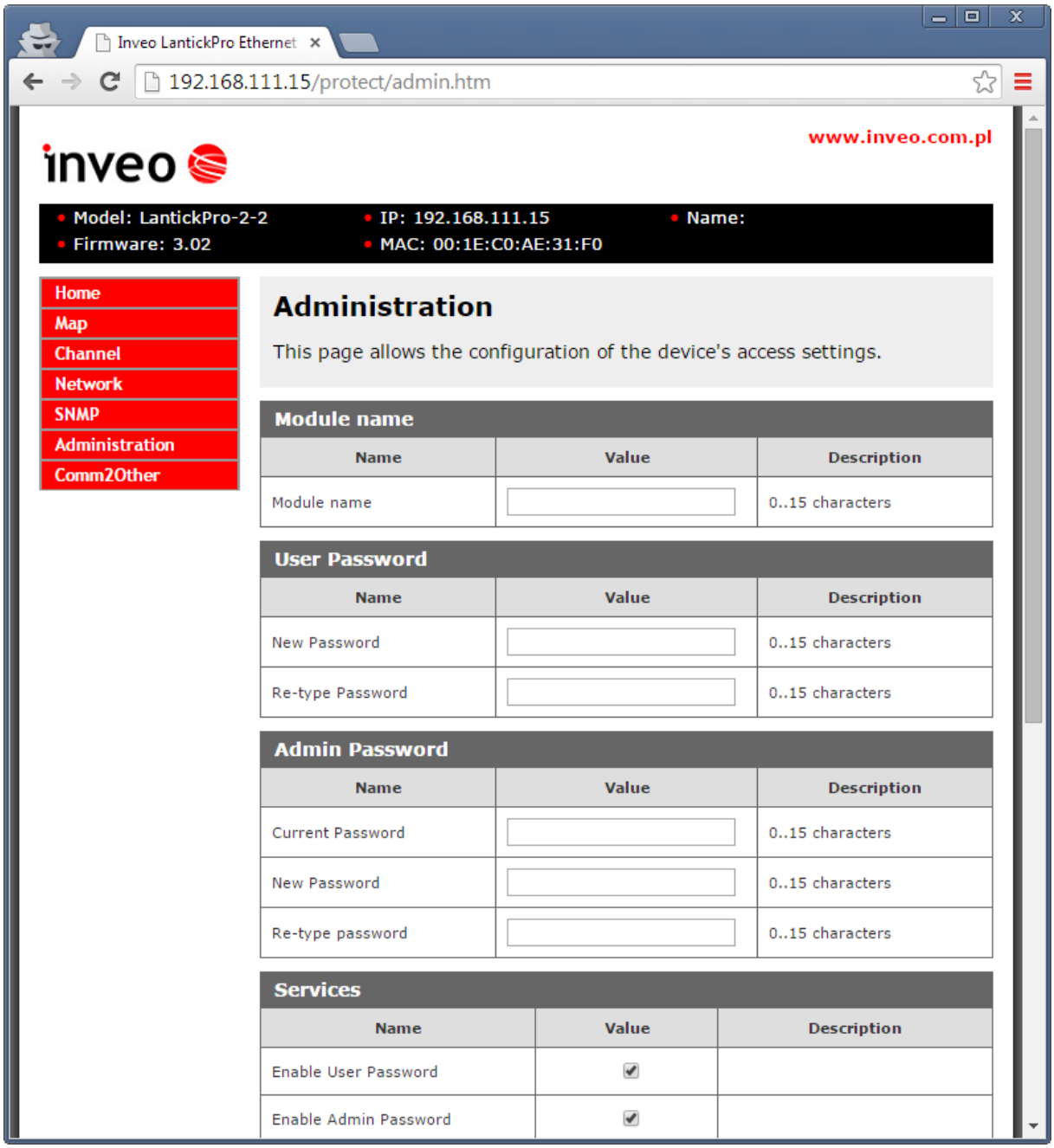
SNMP protocol enables user to retrieve and set the output status and to read state of inputs and counters.

The MIB file describing the structure can be downloaded the SNMP tab.



6.10 ADMINISTRATION Configuration

These settings allow for changing the access password and to enable/disable particular services.



Module name table
Module name – name of the module assigned by the user,

User Password table – change user password (user password allows access only to Home tab)
New Password – enter New password
Re-type Password – retype New Password**,**

Admin Password table – administrator password change(access to all tabs)
Current Password- enter current password

New Password – enter new password
Re-type Password -retype new password**,**

Services table– running service,

- *Enable user password – enables/disables requirement for user password*
- *Enable admin password – enables/disables requirement for admin password*
- *Enable Program Access* – enables/disables the connection to the controller via PC software – Windows or Linux OS.
- *Enable MODBUS TCP Protocol* – enables/disables access using MODBUS TCP protocol.
- *Enable SNMP* – enables/disables access using SNMP protocol.
- *Enable Destination client* – enables/disables access using mode of operation „customer".
- *Enable* Comm2Other Module – enable communication on mulitcast address (IP:224.0.23.12 port 3671)
- Enable Inveo Dashboard – enable control of the module through cloud http://dash.inveo.com.pl
- *Enable TFTP bootloader – enables/disables 10 second bootloader mode after module reboot*
- *Enable Graphic Mode Config (MAP)* – enables/disables the configuration of coordinates in graphic view of relay state
- LED Status 1,LED Status 2 – sets the information displayed by LEDs – input 1,2 output 1,2.

Warning:
TFTP Bootloader **must** be **disabled** during normal operations. It should only be enabled for firmware update.
To apply changes press ***Save*** *button.*

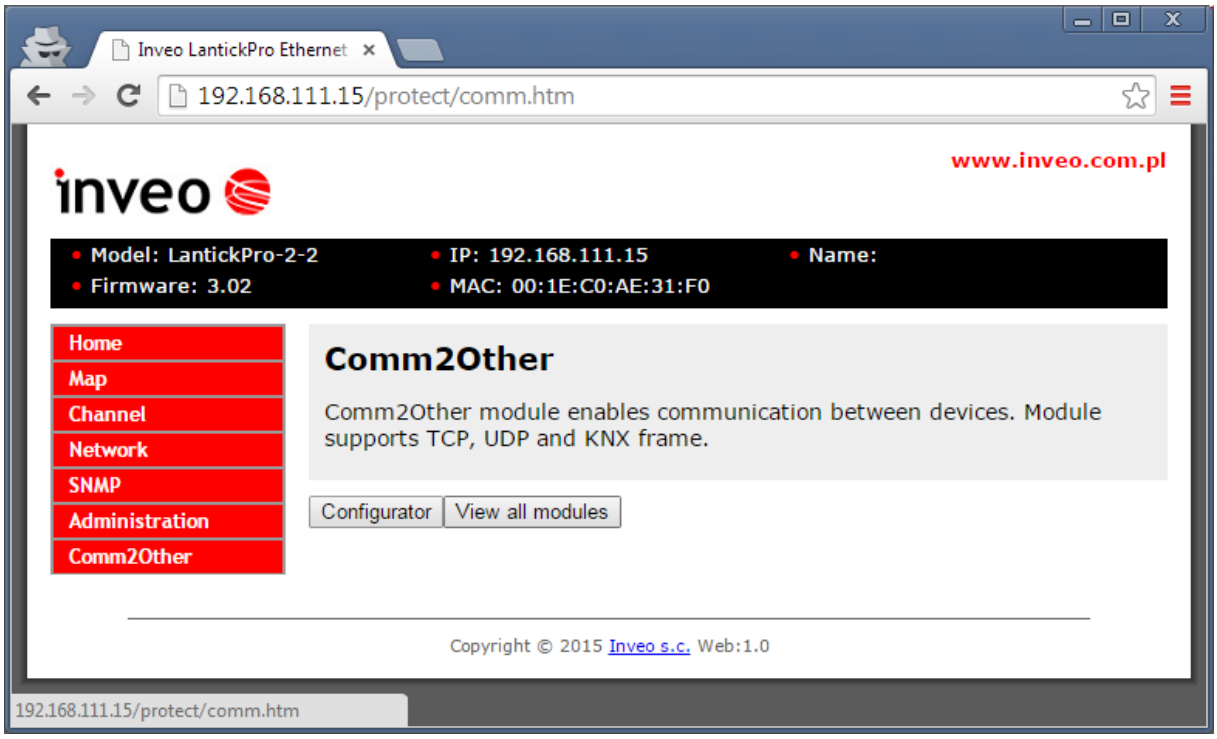
Changing the password
Enter old password into *Current Password* field.
Enter new password into *New Password* field and into *Re-type Password* field then press *„Save" to save new passwords.*

6.11 Comm2other (KNX) Configuration

Module 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 modules does not cause paralysis of the entire system. Communication between the modules is done over the LAN packets on UDP multicast broadcast.

The configuration and operation is based on the principle that the selected receiving devices (eg. Relays connected to the lamp circuits, blinds) and triggers / actors (inputs which are connected eg. Wall switches) are assigned to the common address. Each input channel has entered the command and the address of the group. The output channel may have groups assigned to the each action (enable, disable, change status, enable with delay, shutter). Sending by the input stored group address with the command causes the reaction of all of the receivers that have valid 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 frame TCP or UDP. The outputs can be connected in sections to control shutters. The system can be expanded with a central unit to visualize the building and remote control.



For group configuration press **Configurator** button.

6.12 KNX addressing

KNX communication is based on broadcasting data for separate groups.

KNX groups address in done in following format: a/b/c
a- main group 0-31 (standard 0-15)
b- middle group 0-7
c- subgroup 0-255
ie. 4/0/8

Example group assignment:

Rom	Controlled device	Function
1-kitchen	0-Lights	0-Main lights
2-living room	1-Sockets	1-Aux lights
3-boiler room	2-Shutters	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

6.13 Action configuration for separate channels

Input and output channels have separate configuration

Input channel can react on a group in following ways:

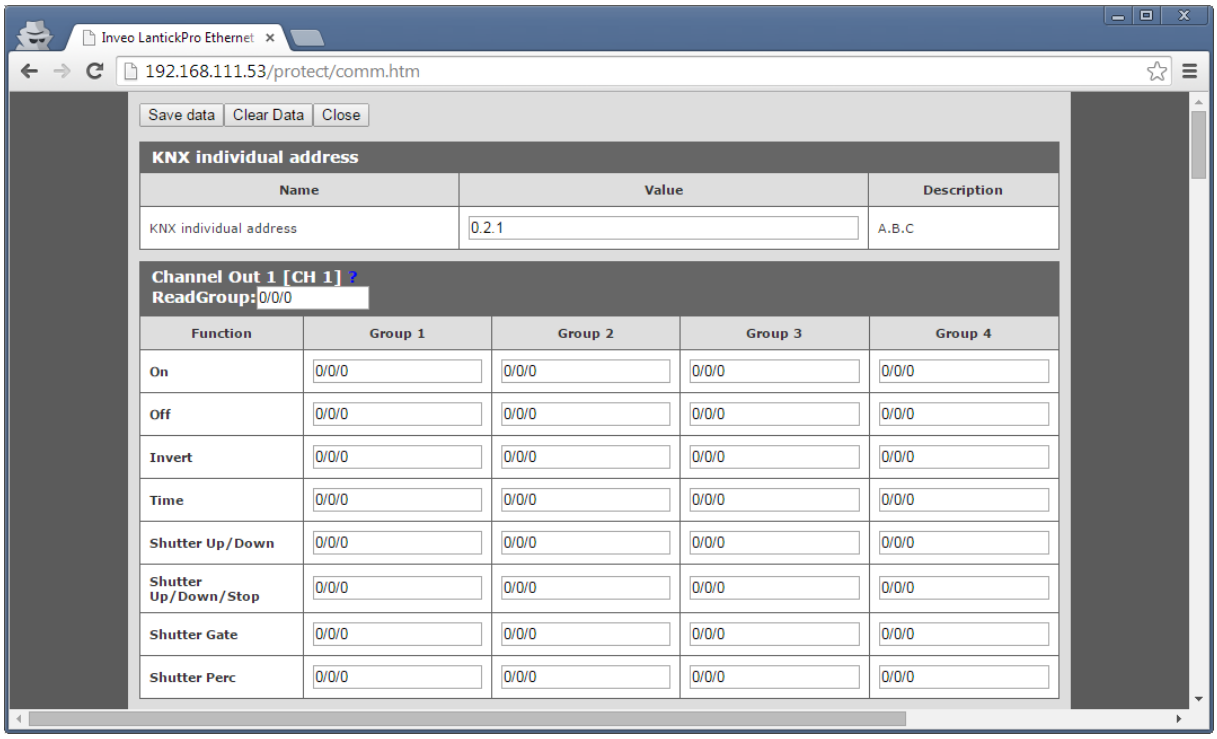
-On – enable output
Following value sent to the group:
0x00 – disable relay
0x01 - enable relay
-Off – disable output
Following value sent to the group:
0x01 - disable relay
0x00 - enable relay
-Invert – invert current state of the output
Following value sent to the group:
0x00 – No action
0x01 – invert the state of the relay
-Time – timed relay mode (TimeBased)
Following value sent to the group:
0x00 – Disable relay
0x01 - TonMSB TonLSM ToffMSB ToffLSB
Example:
Enable channel for 60 seconds: 0x01 0x02 0x58

-**Shutter Up/Down – shutter control up/down**
Following value sent to the group:
0x01 -open the shutter
0x00 -close the shutter

-Shutter Up/Down/Stop -control the shutter up/down with stop
Following value sent to the group:
0x00 -close the shutter
0x01 -open the shutter
During opening or closing of the shutter sending the value to the group will cause the shutter to stop.
Example:
Pressing the button causes the shutter to start opening. Second pressing will stop the shutter.

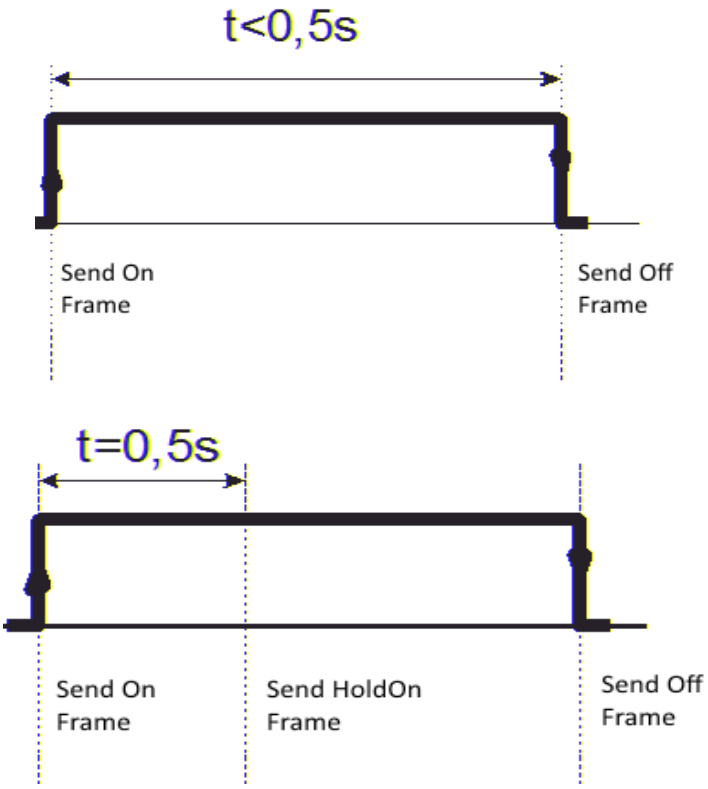
-Shutter Gate – control the shutter up-stop-down-stop
Following value sent to the group:
0x01 -open the shutter
sending 0x01 value again will cause the shutter to stop, sending it again will cause the shutter to start closing and so on.

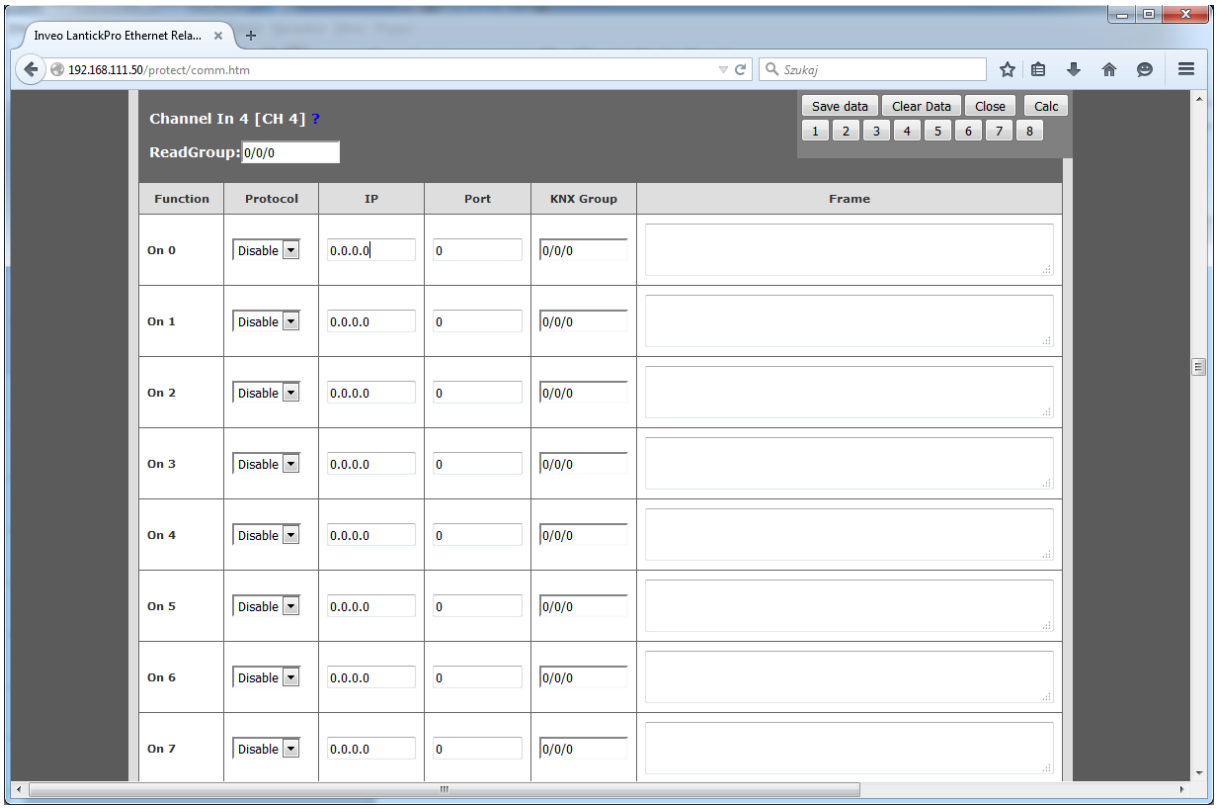
-Shutter Pos – open shutter to specific position.
Following value sent to the group:
0x01 Position (0-255)



Input Channels

Sending the frames can be triggered at different positions:
- raising edge (ON)
- falling edge (OFF)
- raising edge when input is active for more than half a second (Hold ON)
- falling edge when input is active for more than half a second (Hold OFF)





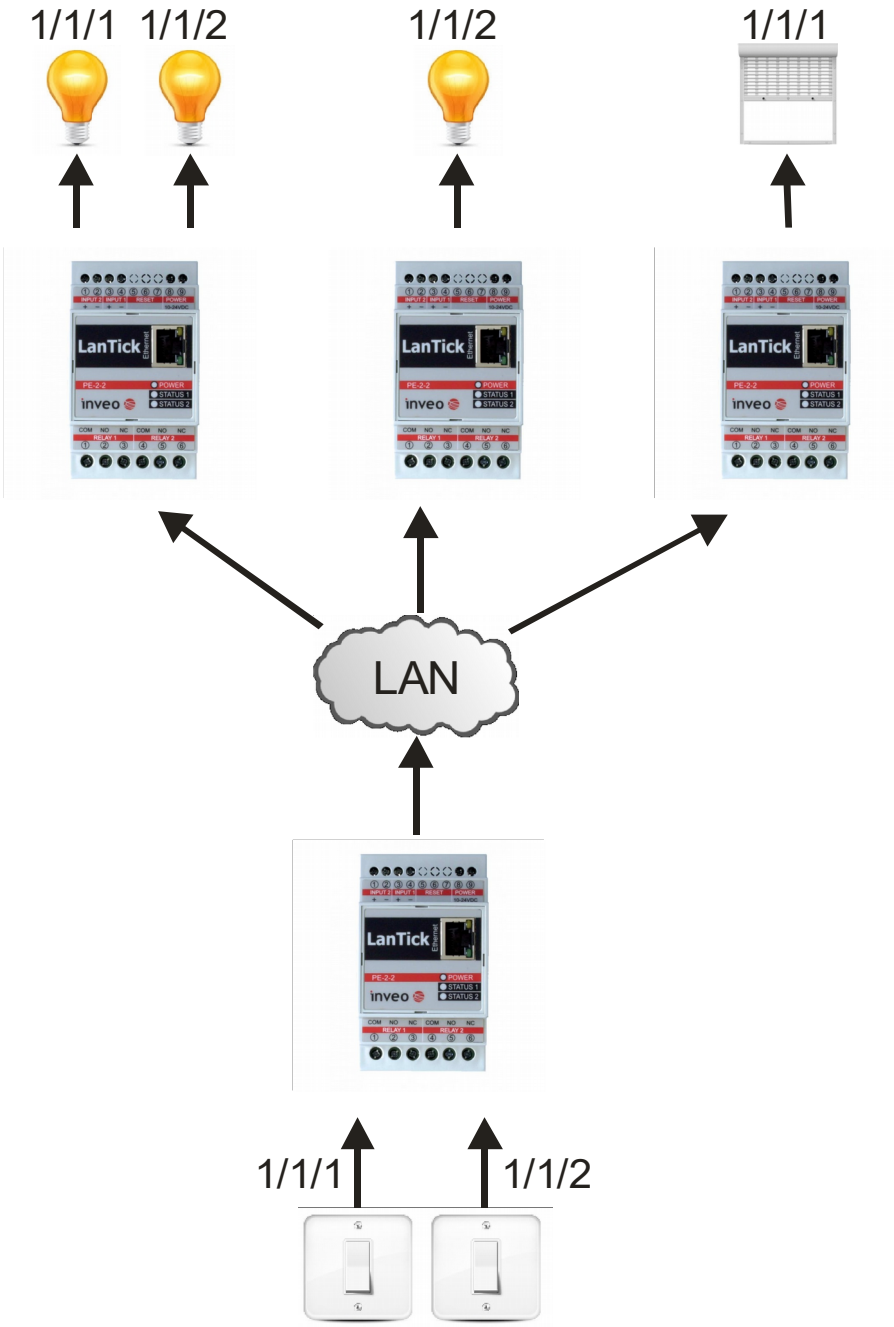
To send a KNX frame select the KNX in Protocol column then in the KNX group enter the group address to which the message should be sent and the frame data to be sent.

To send a TCP frame select the TCP in Protocol column then enter the IP address and Port. In the Frame type the data to be sent.

Please note that the TCP IP is a acknowledged protocol that means sending a few frames in series module will wait for confirmation of delivery which can cause module halting.

View all KNX devices
When configuring complex installation useful feature is available under the button View all modules. This function scans the LAN and detects all Inveo devices which are active on KNX protocol and compiles them in one table sorting into groups. It is very helpful in more complex applications.

Example module connections:



6.14 Control over Inveo Cloud http://dash.inveo.com.pl

Inveo dashboard enables the control of the module via Inveo Dashboard http://dash.inveo.com.pl

After enabling **Enable Inveo Dashboard** in **Administration tab** the module will send its input output state to the cloud server.

User needs to register to enable the use of Inveo Dashboard.

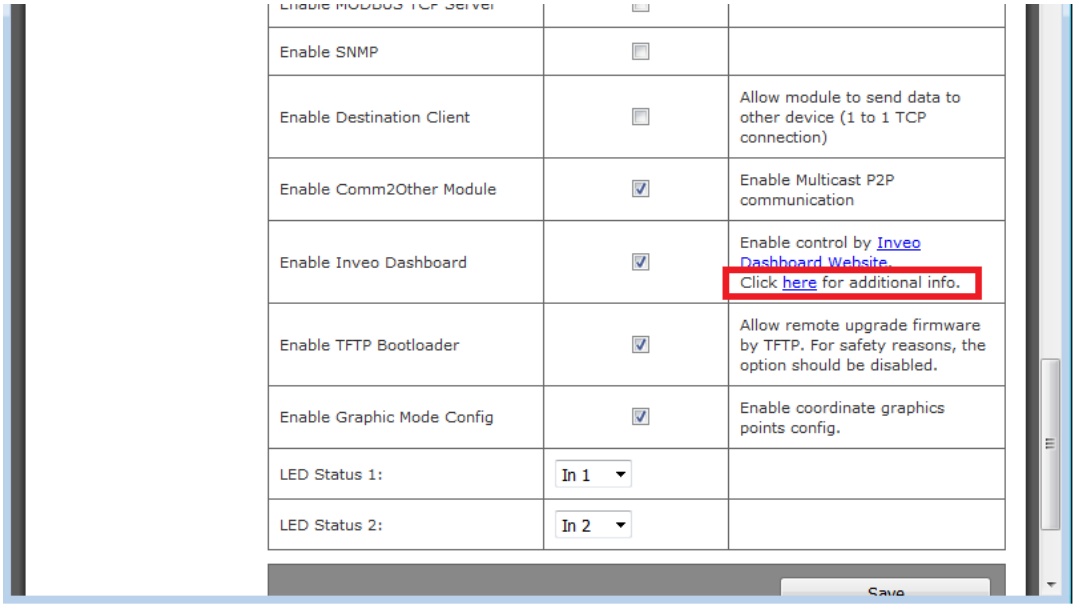
Enter the following address into web browser: http://dash.inveo.com.pl
Click on „Załóż konto”

Type the text from the picture in captcha window.

Press „Zaloz” button when form is filled.

Activation key will be sent to email address specified at registration. Enter this code when prompted.
Log in to the Dashboard account to add devices to control.

Press the „Dodaj/Usuń” button to add new devices. The website will ask for device specific key that is hard coded into the LantickPro module. Read the key from Administration tab and enter into into dashboard.



To add a device paste the key marked in red to remove the device paste the key highlighted in blue.

6.15 Managing the controller using windows command line software

The controller can be operated using windows command line software – the software is delivered with the controller.
Syntax is as follows:

: TCPRel.exe [Parameters]

Parameter	Description
-out=[1 - 2]	Output Number
-in=[3-4]	Input Number -in=3 for input no 1 -in=4 for input no 2
-host=[HOST]	Module IP address
-port=[PORT]	Module Port number
-on | -off	Engage/Disengage
-writecounter=0-4228250625	Set counter
-readcounter	Read counter
-verb	Enabled display of additional info
-stat	Displays current state of inputs/outputs

Example:

Enabling relay 1, module address 192.168.111.15 and port 9761:

Reset counter 1:

Set counter 1 to value of 123:

Read state of counter 1:

Reading state of input 2:

6.16 Managing the controller using Linux command line software

The controller can be configured using Linux command line software – the software is delivered with the module.
Syntax is as follows:

./TcpRel.exe [Parameters]

Parameter	Function
-o [1 - 2]	Output number
-i [3-4]	**Input no** -i 3 for input no 1 -i 4 for input no 2
-h [HOST]	Module IP address
-p [PORT]	Module Port number
-s [0,1]	Engage/Disengage
-w 0-4228250625	Set counter
-r	Read counter
-l	Displays current state of inputs/outputs

Examples:

Enabling relay 1, module address 192.168.111.15 and port 9761:

```
./tcprel
```

Reset counter 1:

```
./tcprel
```

Set counter 2 with value 123:

```
./tcprel -h
```

Reading counts on counter 1:

```
./tcprel -h
```

Read input 2 state:

```
./tcprel -h
```

6.17 Managing the controller using MODBUS TCP

MODBUS TCP protocol is listening on port 502.
The controller supports following functions of MODBUS protocol:
- 0x01 Read Coils,
- 0x03 Read Holding Register,
- 0x05 Write Single Coil,
- 0x06 Write Single Register,
- 0x0F Write Multiple Coils,
- 0x10 Write Multiple Registers.

The registers description is shown in tables 2 and 3.

MODBUS TCP - Holding Registers.

Register Number	Name	Mode (R-read, W-write)	Description
4000	T1On	R/W	Engage time of relay 1 (*100ms)
4001	T2On	R/W	Engage time of relay 2 (*100ms)
4008	T1Off	R/W	Disengage time of relay 1 (*100ms)
4009	T2Off	R/W	Disengage time of relay 2 (*100ms)
4016	Rel1Mode	R/W	Mode of operation for relay 1: 1 – Static 2 – Toggle 3 – TimeBased
4017	Rel2Mode	R/W	Mode of operation for relay 1: 1 – Static 2 – Toggle 3 – TimeBased
4028	Counter1H	R/W	Counter 1 – Higher byte of counter
4029	Counter1L	R/W	Counter 1 – Lower byte of counter
4030	Counter2H	R/W	Counter 2 – Higher byte of counter
4031	Counter2L	R/W	Counter 2 – Lower byte of counter

MODBUS TCP - Coils

No	Name	Mode (R-Read, W-Write)	Description [output channel/input channel]
1000	On1	R/W	Engaging relay 1/ Input 1 status
1001	On2	R/W	Engaging relay 2 / Input 2 status
1008	Out1	R	Relay 1 coil status/ Input 1 status
1009	Out2	R	Relay 2 coil status/ Input 2 status

6.18 Communication with controller using HTTP.

Lantick PE-2-2 modules can be controlled using HTTP. To read current state of the module inputs/outputs access this address - http://192.168.111.15/stat.php – in web browser.

XML file consist all of the information:

```
<response>
<prod_name>Lantick-4-4</prod_name>
<out>00000101</out>
<on>00000101</on>
<in>01000000</in>
<counter1>0</counter1>
<counter2>0</counter2>
<counter3>0</counter3>
<counter4>0</counter4>
<counter5>0</counter5>
<counter6>0</counter6>
<counter7>0</counter7>
<counter8>0</counter8>
</response>
```

Section	Description

`<prod_name>`
`Lantick-PE-2-2`
`</prod_name>`
	Type of module
	In this case Lantick-PE-2-2.

`<out>00000001</out>`	Output state (enabled/disabled). In this example OUT1 and OUT3 are active
`<on>00000001</on>`	Output state
`<in>00000000</in>`	Input state (Active/Inactive) input 7 is active

`<counter1>0</counter1>`
`<counter2>0</counter2>`
`<counter3>0</counter3>`
`<counter4>0</counter4>`
`<counter5>0</counter5>`
`<counter6>0</counter6>`
`<counter7>0</counter7>`
`<counter8>0</counter8>`
	Counter inputs
	In Lantick 4-4 module IN5-IN8 correspond to counter1-counter4

LanTickPro includes module to control shutters.

Command	Description
http://nr_ip/stat.php?on=x	Enable output 2. x=output relay number: PE-8-0 x=1..8 PE-0-8 x=N/A PE-4-4 x=1..4
http://nr_ip/stat.php?off=x	Disable output. x=output relay number PE-8-0 x=1..8 PE-0-8 x=N/A PE-4-4 x=1..4
http://nr_ip/stat.php?inv=x	Inverse output state. x= output relay number PE-8-0 x=1..8 PE-0-8 x=N/A PE-4-4 x=1..4
http://nr_ip/stat.php?set=87654321	Setting all of the outputs. Options: 1 – enable 0 – disable n – negate the current state - -no change
http://nr_ip/stat.php?cnt=x,y	Set value of input counter x=input number y-value PE-2-2 x=3,4 PE-4-4 x=5,6,7,8 PE-0-8 x=1,2,3,4,5,6,7,8
http://nr_ip/stat.php?on=a&ton=x&toff=y&astab	
http://nr_ip/stat.php?on=a&ton=x&toff=y&bistab	
http://nr_ip/stat.php?on=a&ton=x&toff=y&timebased	
http://nr_ip/stat.php?rollup=x	Open shutter x-shutter number PE-2-2 x=1 PE-4-4 x=1,2 PE-8-0 x=1,2,3,4
http://nr_ip/stat.php?rolldown=x	Close shutter x-shutter number PE-2-2 x=1 PE-4-4 x=1,2 PE-8-0 x=1,2,3,4
http://nr_ip/stat.php?rollus=x	Open shutter and stop x-shutter number PE-2-2 x=1 PE-4-4 x=1,2

	PE-8-0 x=1,2,3,4
http://nr_ip/stat.php?rollds=x	Close shutter and stop x-shutter number PE-2-2 x=1 PE-4-4 x=1,2 PE-8-0 x=1,2,3,4
http://nr_ip/stat.php?rollstop=x	Stop shutter x-shutter number PE-2-2 x=1 PE-4-4 x=1,2 PE-8-0 x=1,2,3,4
http://nr_ip/stat.php?rollgate=x	Open shutter – Stop- Close shutter x-shutter number PE-2-2 x=1 PE-4-4 x=1,2 PE-8-0 x=1,2,3,4
http://nr_ip/stat.php?rollpos=x,y	Open shutter x-shutter number y- percentage value PE-2-2 x=1 PE-4-4 x=1,2 PE-8-0 x=1,2,3,4

Command examples using HTTP

1.Enable output relay 2:
http://192.168.111.15/stat.php?on=2

2.Change of state relay output OUT1:
http://192.168.111.15/stat.php?inv=1

3.Disable relay output 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=000000n1

5.Set counter to value 1234 for input 3.
http://192.168.111.15/stat.php?cnt=3,1234

6.19 TCP/IP protocol communication description

Byte	1	2	3	4	5	6	7	8	9	10	11		
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; 1 output state 2 coil state
Read channel name	15	101	0-7	x	x	x	x	x	x	x	CRC	String	
Read device name	15	200	x	x	x	x	x	x	x	x	CRC	String	

*only Lantick and PE-2-1
** only Lantick
*** - Reading parameters returns:

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

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

As default modules are listening on port 9761

Frame examples:

Enabling output 1 in static mode

SOF	CMD	CH	Data 1	Data 2	Data 3	Data 4	Data 5	Data 6	Data 7	CRC
15	1	0	0	1	1	0	0	0	0	18

Set counter 2 to 100

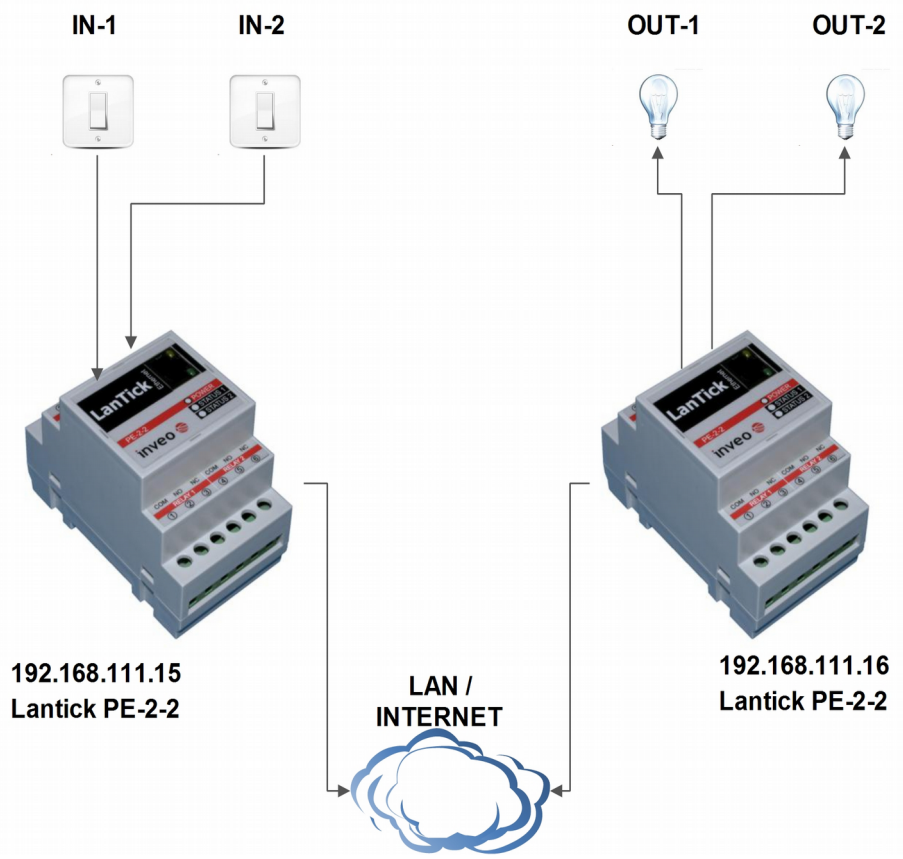
SOF	CMD	CH	Data 1	Data 2	Data 3	Data 4	Data 5	Data 6	Data 7	CRC
15	10	1	100	0	0	0	0	0	0	126

7 Examples

7.1 Direct connection between modules (bridge connection)

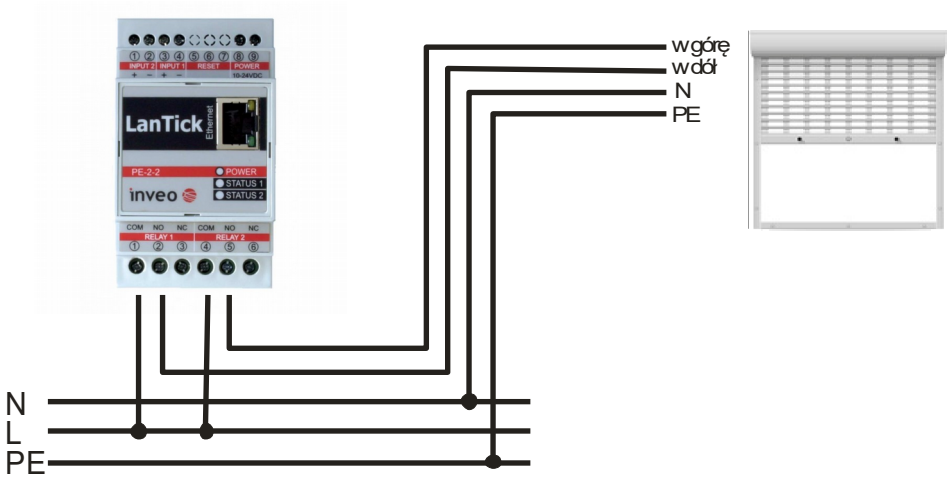
Example configuration:
Module at address 192.168.111.15 in Network->Destination IP enter 192.168.111.16 port 9761. In Channel->Channel1 tab set Dest1, Channel → Channel2 set Dest2.

After triggering input 1 in module 192.168.111.15 output 1 in module 192.168.111.16 will be triggered and after triggering input 2 in 111.15 output 2 in 111.16 will be triggered.

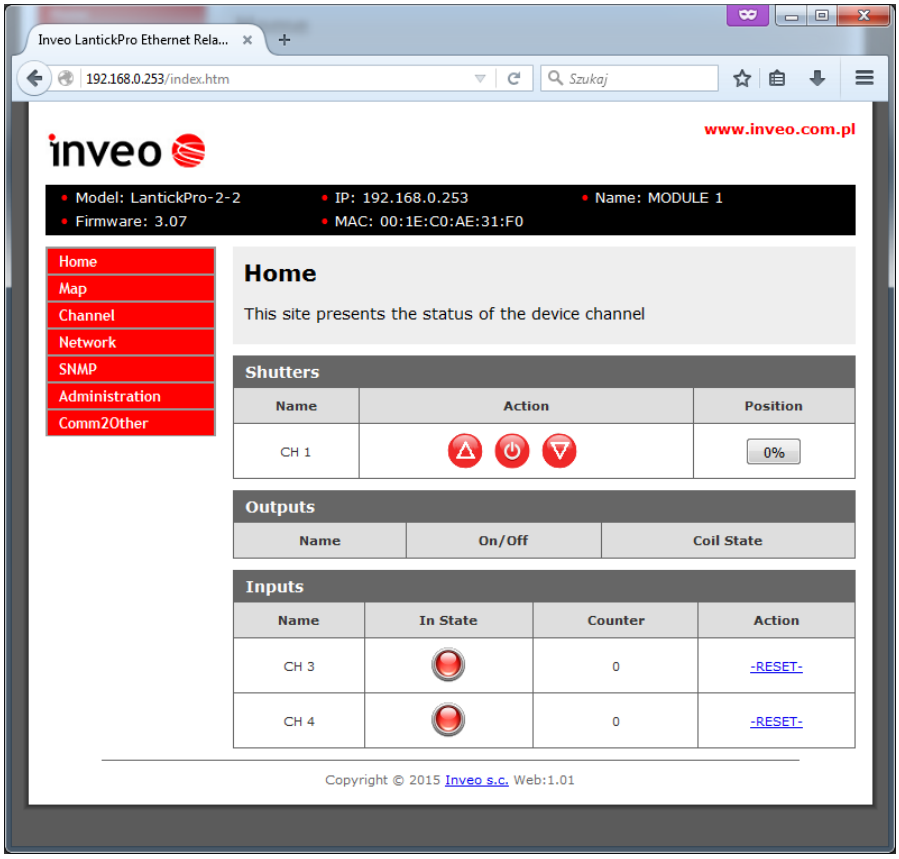


7.2 Example connection of module PE-2-2 to shutter motor

In shutter control mode module PE-2-2 automatically enables or disables relays that control shutter opening and closing.



To enable the module to correctly open and close the shutter set the time needed to completely open/close the shutter.
For PE-2-2 module the time is set by changing **Full move Time**.



8 Communication with controller from outside 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 form of communication different ports need to be redirected:

Using web interface:

- port TCP/IP 80

Using KNX/IP protocol:

- UDP 224.0.23.12 port: 3671

Computer software or customer application:

- port TCP/IP 9761

Using MODBUS TCP protocol:

- port TCP/IP 502

Using SNMP protocol:

- port UDP 161

9 Restoring factory defaults

In order to restore the controller to its factory defaults press and hold reset button for at least 8 seconds.
With factory defaults restored the module settings are as follows:

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

10 Firmware update

The controller has the ability to update the firmware. The firmware is supplied as a file with .hex extension.

Note! Improper use of the update feature may damage the module. Make sure that undisturbed power is connected to the module for duration of programming.

To perform the programming operation, go to the Windows command line (Start-> Run-> type 'cmd' and confirm with Enter).

Then navigate to the directory where the file resides and enter the command

tftp <controller_*ip_adress*> **PUT** filename*.hex*

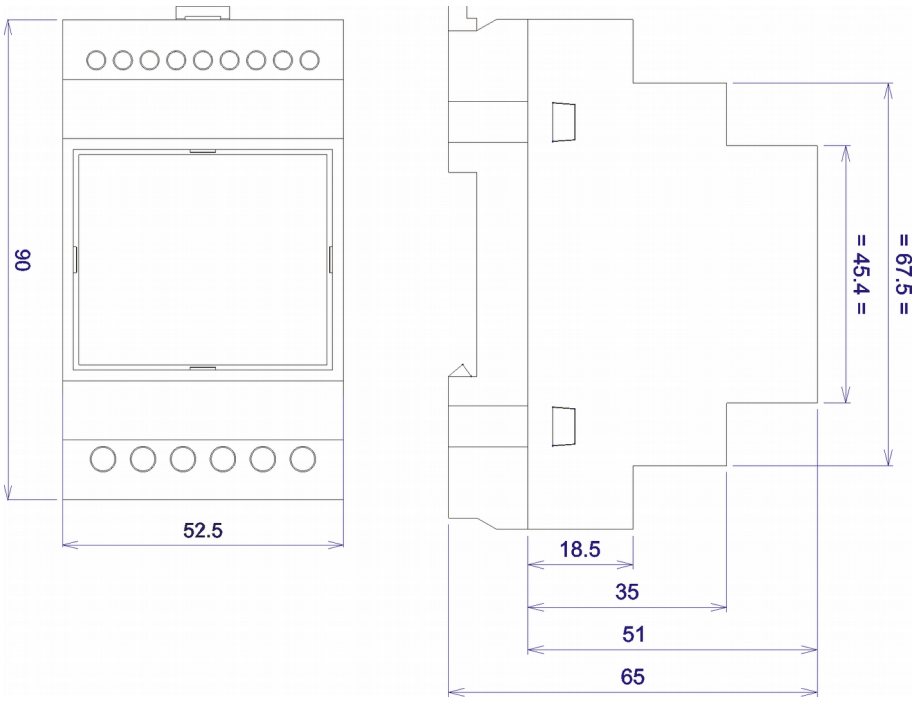
where: < controller_*ip_adress* > is the IP address of the module
filename.hex – is the firmware supplied by Inveo s.c.

The programming takes about 1 minute and it's confirmed by "File Transferred" message.

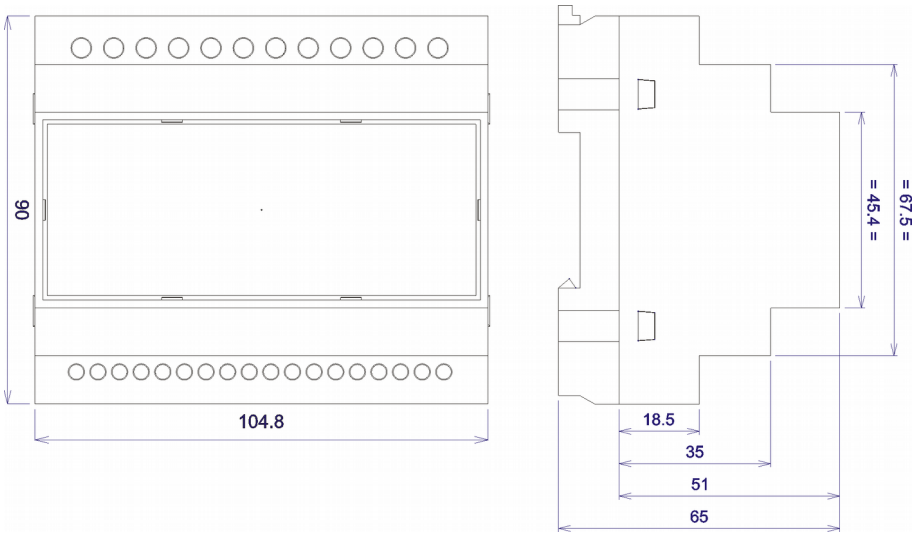
Latest firmware is available at www.inveo.com.pl

11 Dimensions

All dimensions are in millimeters
module PE-2-2



All dimensions are in millimeters
Module PE-4-4, PE-8-0, PE-0-8



Notes