iSMA Configurator

User Manual

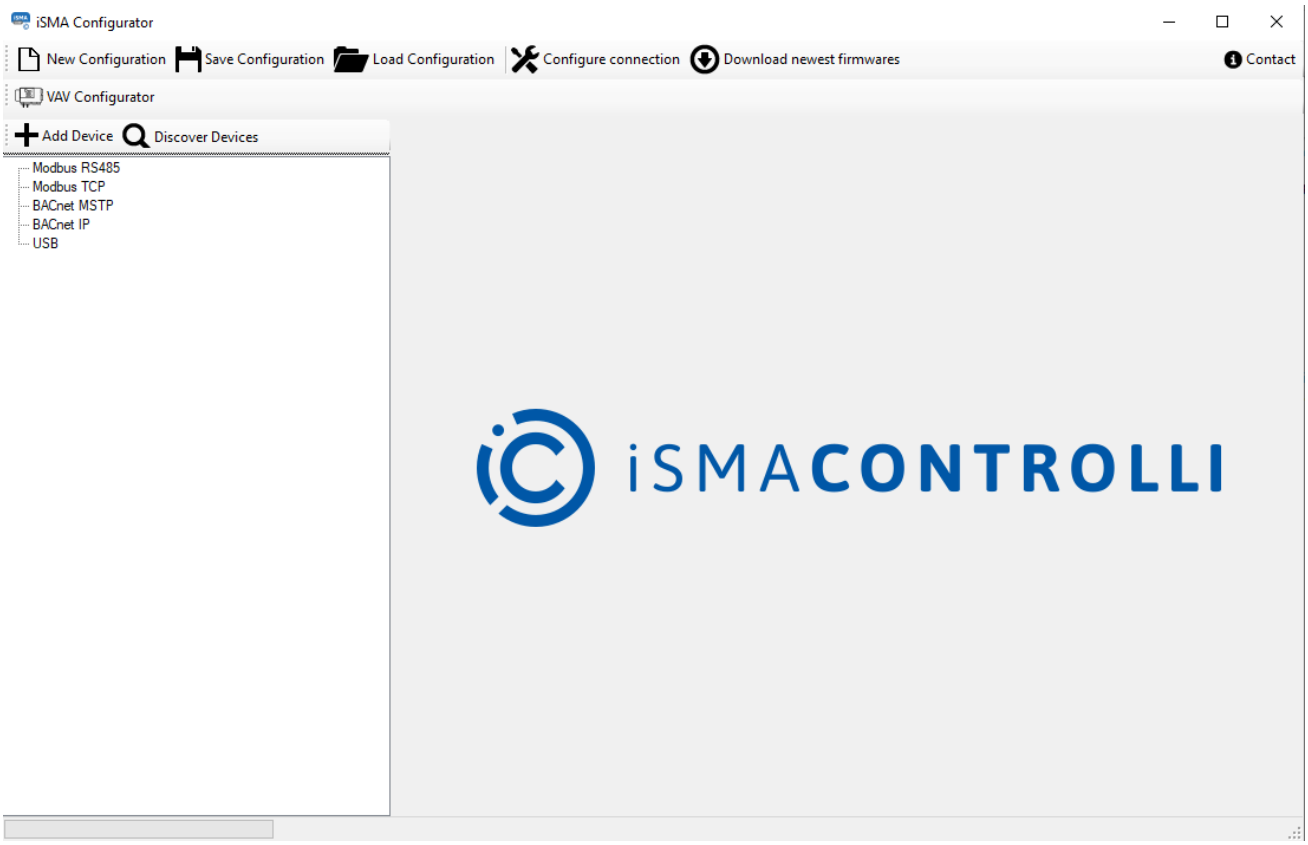

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Table of Contents

1 Introduction

This user manual outlines the features of the iSMA Configurator software.

1.1 Revision History

Date	Rev.	Description
18 Jun 2025	1.6	VAV14-IP controller support
30 Jan 2025	1.5	• Control Point panel support • MAX series I/O modules support
21 Feb 2023	1.4	FP panel support
17 May 2022	1.3	• Corrections in section 2 • Touch Point panel support
21 Apr 2022	1.2	Rebranded
31 Mar 2020	1.1	Company data update
21 Dec 2017	1.0	First edition

Table 1. Revision history

2 General Purpose of iSMA Configurator Software

The iSMA Configurator software is designed to perform configuration, firmware update, and diagnosis of the non-programmable iSMA devices. The iSMA Configurator can communicate with configurable modules via RS485, TCP/IP, or USB COM Port. The software is free and can be obtained from your distribution partner or downloaded from the Download Center at ismacontrolli.com.

The iSMA Configurator allows for the following actions:

- downloading the latest firmware versions to the PC from iSMA CONTROLLI server;
- uploading new firmware on devices;
- creating/saving/loading the list of discovered devices (Project);
- resetting devices;
- reloading device settings;
- restoring device configurations to default settings;
- configuring devices;
- changing or viewing communication parameters of the devices;
- discovering gateway devices;
- VAV Configurator: configuring, commisioning, and balancing VAV14-IP controllers over the BACnet IP network.

The iSMA Configurator allows for five types of communication:

- Modbus RTU with the RS485 port;
- Modbus TCP/IP with the IP port;
- BACnet MS/TP with the RS485 port;
- BACnet IP with the IP port;
- USB with the direct USB cable connection.

Information about the type of communication, firmware upgrade, and configuration possibilities is described in the tables below.

Device	Firmware Update				
	Modbus RTU	Modbus TCP/IP	BACnet MS/TP	BACnet IP	USB
MIX series	✓	✓ (only via a gateway device)	✓ (from FW 6.0 and HW 2.0)	X	✓
MIX-IP series	✓	✓	✓ (from FW 6.0)	✓ (from FW 6.0)	✓
MINI series	✓	✓ (only via a gateway device)	✓ (from FW 6.0)	X	✓
MINI-IP series	✓	✓	✓ (from FW 6.0)	✓ (from FW 6.0)	✓
MAX series	✓	✓ (only via a gateway device)	✓	X	✓
MAX-IP series	✓	✓	✓	✓	✓
VAV14-IP	X	X	X	X	X
FCU	X	X	X	X	X

LP	✓	✓ (only via a gateway device)	✓	X	✓
2D1B	✓	✓ (only via a gateway device)	X	X	✓
2D	✓	✓ (only via a gateway device)	X	X	✓
AAC20	X	X	X	X	X
AAC20-LCD	X	X	X	X	X
W0202	✓	✓ (only via a gateway device)	X	X	✓
MG-IP	✓	✓	X	X	✓
Touch Point	✓	✓ (only via a gateway device)	X	X	✓
Control Point	✓	✓ (only via a gateway device)	✓	X	✓
FP	✓	✓ (only via a gateway device)	X	X	X

Table 2. Firmware updates in the iSMA Configurator

Device	Configuration				
	Modbus RTU	Modbus TCP/IP	BACnet MS/TP	BACnet IP	USB
MIX series	✓	✓ (only via a gateway device)	✓ (completely from FW 6.0)	✓ (completely from FW 6.0)	✓
MIX-IP series	X	✓	X	✓ (from FW 6.0)	✓
MINI series	✓	✓ (only via a gateway device)	✓ (from FW 6.0)	✓ (from FW 6.0)	✓
MINI-IP series	X	✓	X	✓ (from FW 6.0)	✓
MAX series	✓	✓ (only via a gateway device)	✓	✓	✓
MAX-IP series	X	✓	X	✓	✓
VAV14-IP	X	X	X	✓ (only via VAV Configurator)	X
FCU	✓	✓ (only via a gateway device)	✓	X	✓

LP	✓	✓ (only via a gateway device)	✓ (read-only)	X	✓
2D1B	✓	✓ (only via a gateway device)	X	X	✓
2D	✓	✓ (only via a gateway device)	X	X	✓
AAC20	X	✓	X	✓	✓
AAC20-LCD	X	✓	X	✓	✓
W0202	✓	✓ (only via a gateway device)	X	X	✓
MG-IP	X	✓	X	X	✓
Touch Point	✓	✓ (only via a gateway device)	X	X	✓
Control Point	✓	✓ (only via a gateway device)	✓ (read-only)	X	✓
FP	✓	✓ (only via a gateway device)	X	X	X

Table 3. Configuration options in the iSMA Configurator

3 Naming and Definitions

The iSMA Configurator communicates with one or more devices and transfers data in both directions. It is crucial for distinguishing the direction of data flow as described below:

- **read module**: transfers data from the module to PC, for example, to check how the module was configured;
- **write module**: transfers data from the PC to the module, for example, to send changes in module configuration to the module.

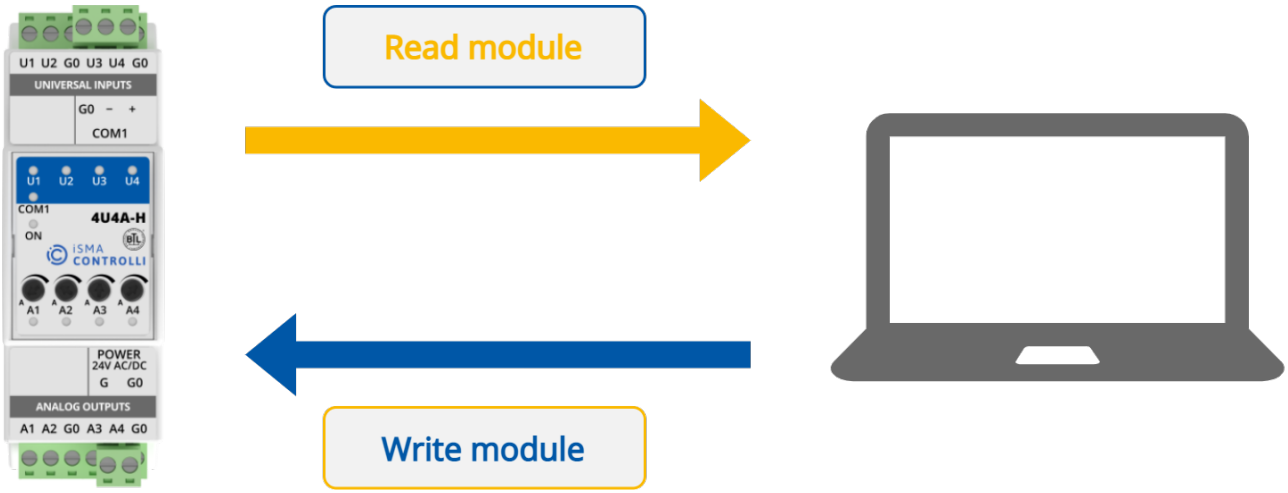


Figure 1. Uploading and downloading to and from a device

4 Software Requirements

Windows compatibility: the iSMA Configurator is an application intended for Windows only, and it can be run on Windows 7, 8, and 10.

There is no need to install any additional software or drivers in order to run the iSMA Configurator.

4.1 Internet Access and Firmware Availability

If the iSMA Configurator is opened for the first time, it is recommended to have the Internet access on a local PC in order to be able to download the latest firmware versions. The application connects with the iSMA CONTROLLI server and informs the user that there are newer firmware versions available for downloading. Information about new firmware versions is presented in a pop-up window as in the figure below.

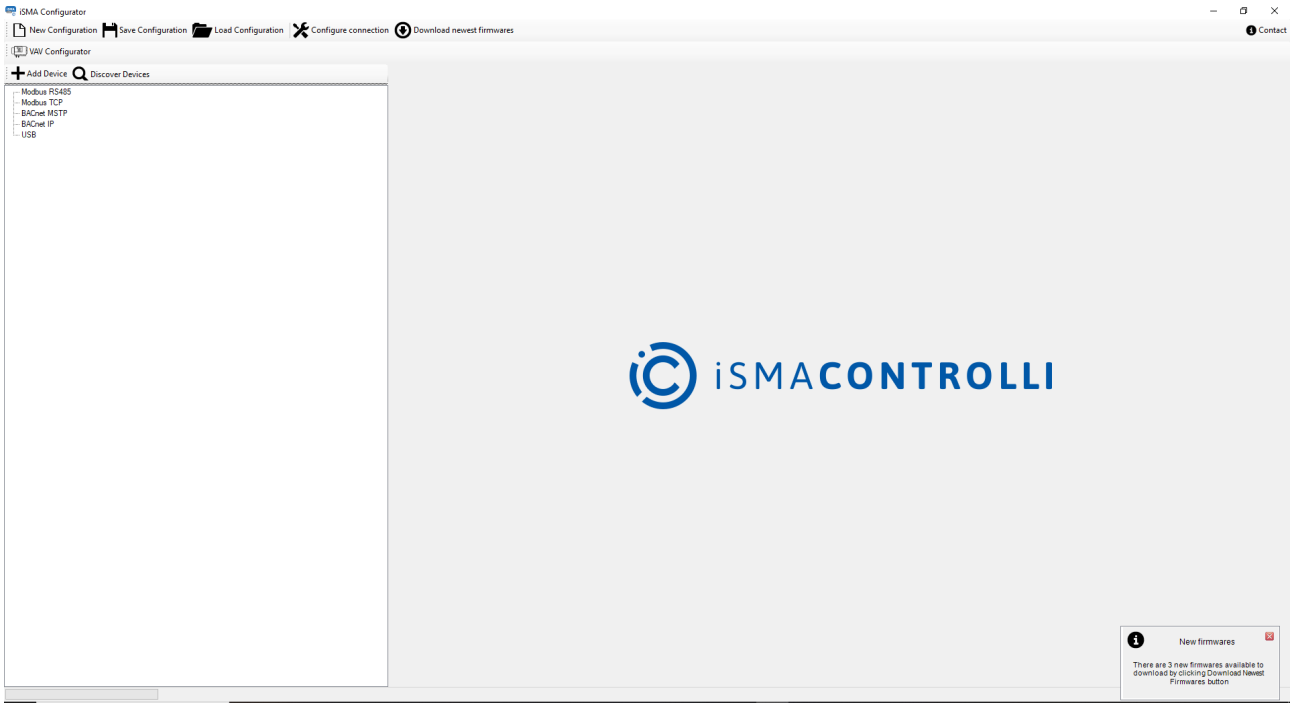


Figure 2. New firmware pop up window

If the new firmware is available, the user can download it by pressing Download Latest Firmware button. When iSMA Configurator finishes the downloading, a message pop-up window shows, which firmware was downloaded. In case the latest firmware versions is already installed in the device, the dialog window shows the message as in the figure below.

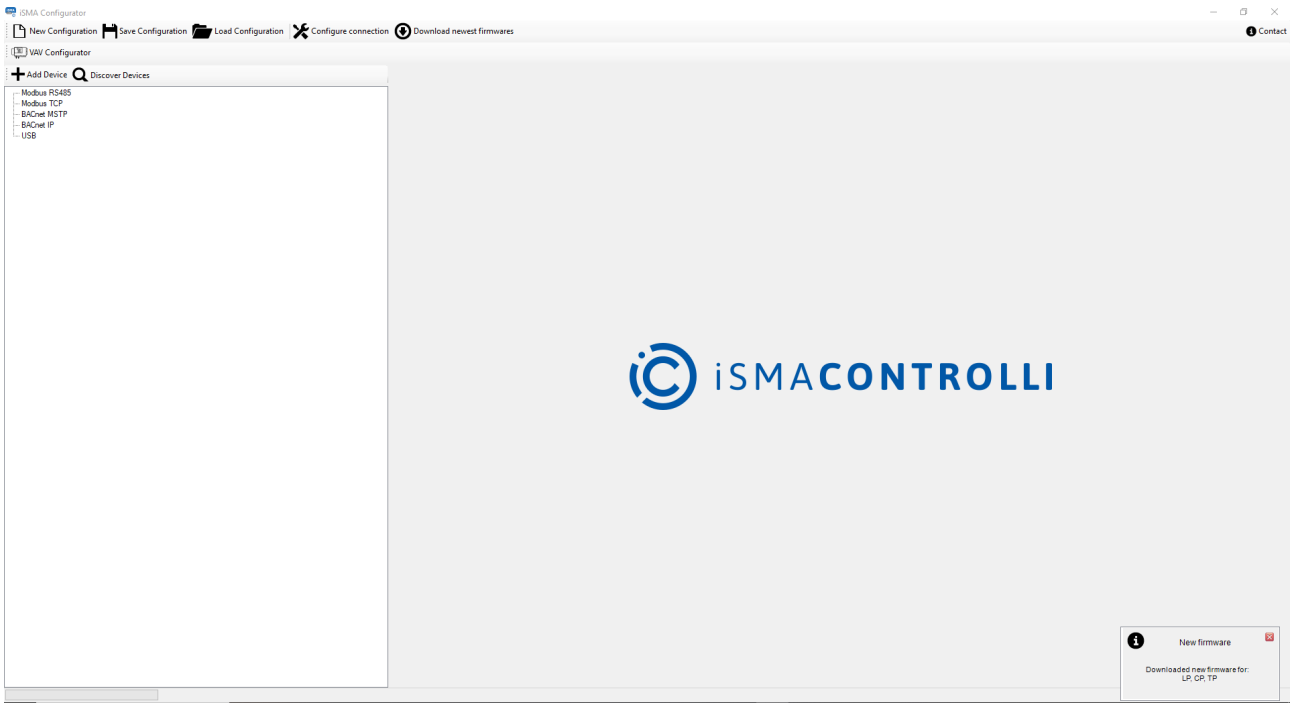


Figure 3. Newest firmware confirmation

5 Connecting to Devices

There are three ways to connect the iSMA Configurator to the configurable devices:

- direct Ethernet connection;
- RS485 bus;
- USB cable.

5.1 Direct Ethernet Connection

In case of a direct Ethernet connection, the iSMA Configurator uses device's IP address to connect to it. To be able to add, discover the device, or make new device configuration, the user's PC's IP address has to be in the same IP range as the device's IP. If the device's default IP address is 192.168.1.123, the user can use, for example, 192.168.1.11.

5.2 RS485 Bus Connection

Connecting the iSMA Configurator to the RS485 bus is recommended on sites, where all the devices are linked together. The RS485 network needs to be connected to the PC with the iSMA Configurator software running. If the PC is not equipped with the RS485 communication port, a converter is required. iSMA CONTROLLI company recommends using a iSMA-B-CVT-RS485 converter, sold separately.

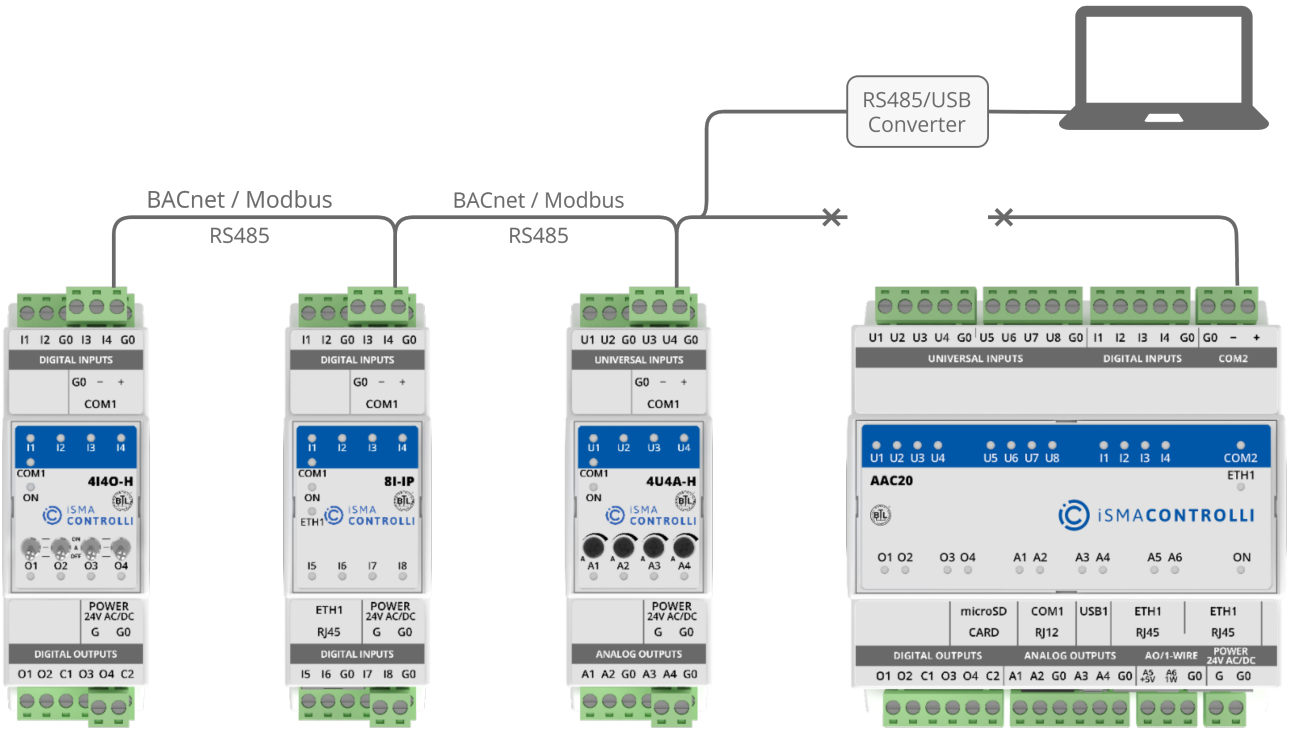


Figure 4. RS485 converter

Note: Before connecting the PC to the iSMA Configurator running on the RS485 network, it is recommended to disconnect the master controller. The next step is to connect the PC via the RS485 converter (if required) and to run the iSMA Configurator. After this, the new project needs to be opened or created. When finished, set up all the required transmission settings, and then the transmission starts. The transmission settings for the Modbus and BACnet protocols are described below.

Note: Once the operation with the iSMA Configurator is finished, please remember to disconnect the PC from the RS485 network and reconnect the master unit.

In order to configure the RS485 connection, click on the Configure connection button.

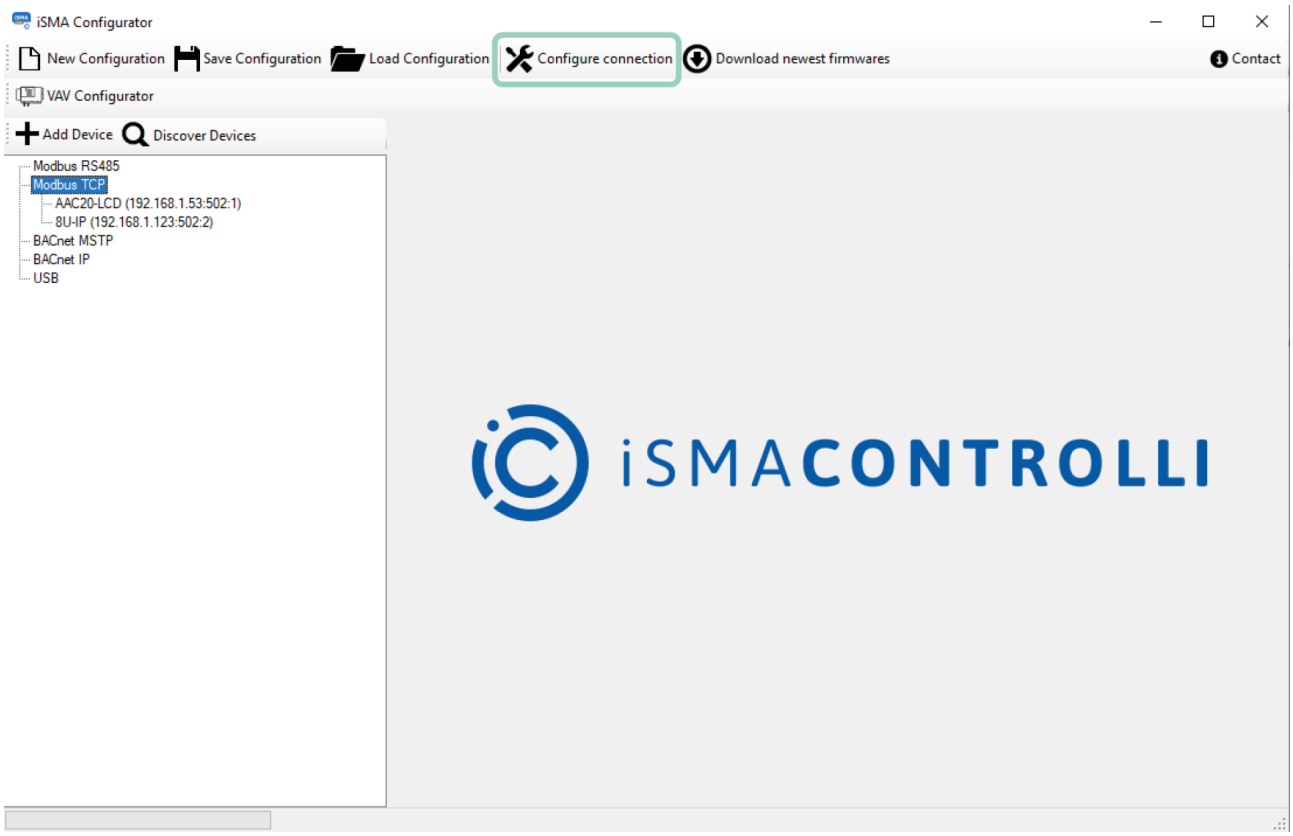


Figure 5. Configure connection button

Depending on the protocol chosen, the following transmission settings are required:

For BACnet communication protocol:

- COM Port: COM port used for the BACnet MS/TP communication to which the RS485 bus is attached;
- Baud rate: baud rate for communication;
- Timeout: time the driver will wait for an expected response from the device before retrying or going on to the next request.
- Software Device ID: the BACnet ID of the local PC; it must be different from the ones for the other devices connected to BACnet bus.

For Modbus communication protocol:

- COM Port**:** the COM port used for the Modbus RTU communication to which the RS485 bus is attached;
- Baud rate: baud rate for communication;
- Parity Bits: defining parity bits; available options: None, Even, Odd.

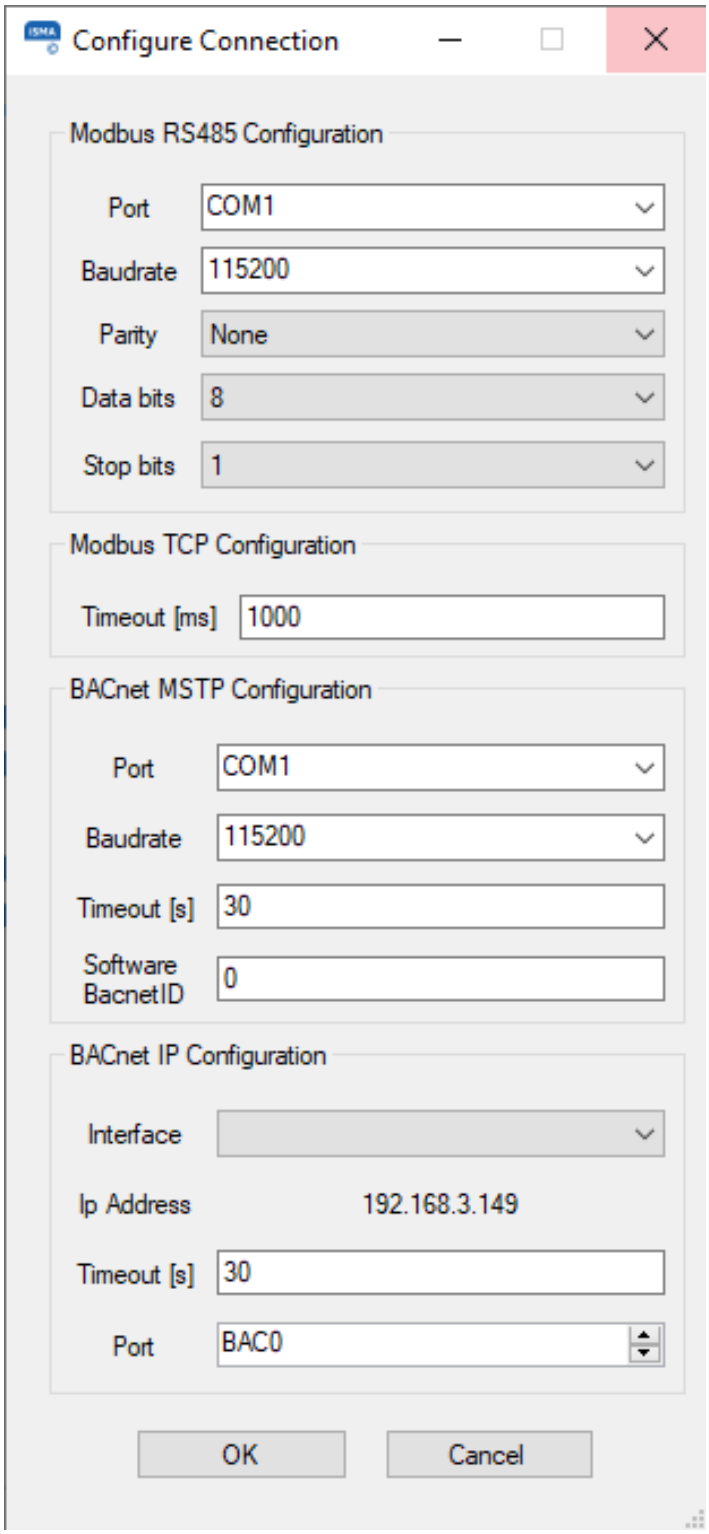


Figure 6. Modbus/BACnet RS485 configuration

5.3 USB Connection

Each configurable iSMA device is equipped with a USB port available on its board, which allows to connect to a PC directly to the iSMA Configurator running. This USB connection automatically configures the communication COM port on the PC and enables adequate functions in the iSMA Configurator. The USB connection also provides power supply to the devices, so they can be configured without any additional power source.

Note: With USB cable connected to the USB slot in the device, it is possible to operate only on one device, which was automatically recognized as attached to the controller and appears under the USB branch.

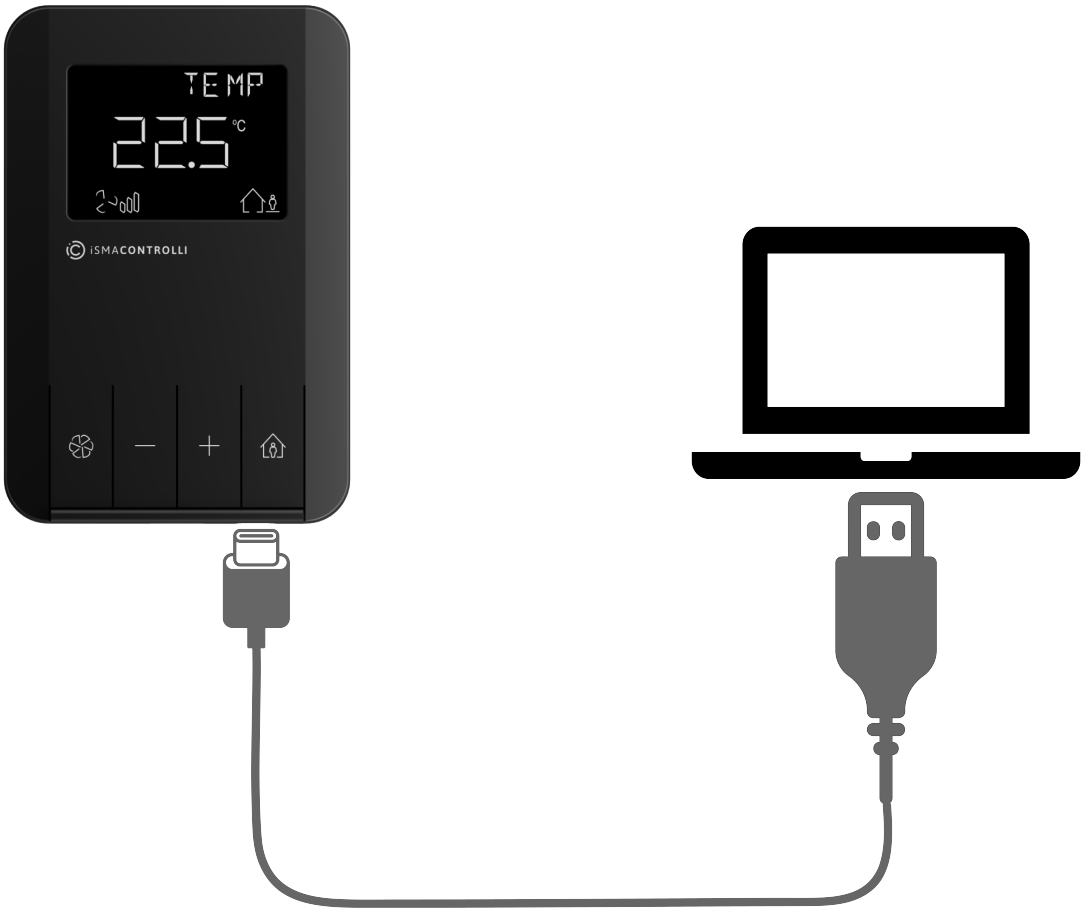


Figure 7. Direct USB connection to a CP panel

After direct connecting of the controller or the panel to the PC, the system automatically recognizes the attached device and shows it in the main table assuming that a project is already opened. No particular communication settings are required for setting transmission parameters or starting the transmission.

Note: The direct connection with USB cable can only be setup to one device at the time. To stop the direct connection simply disconnect the cable.

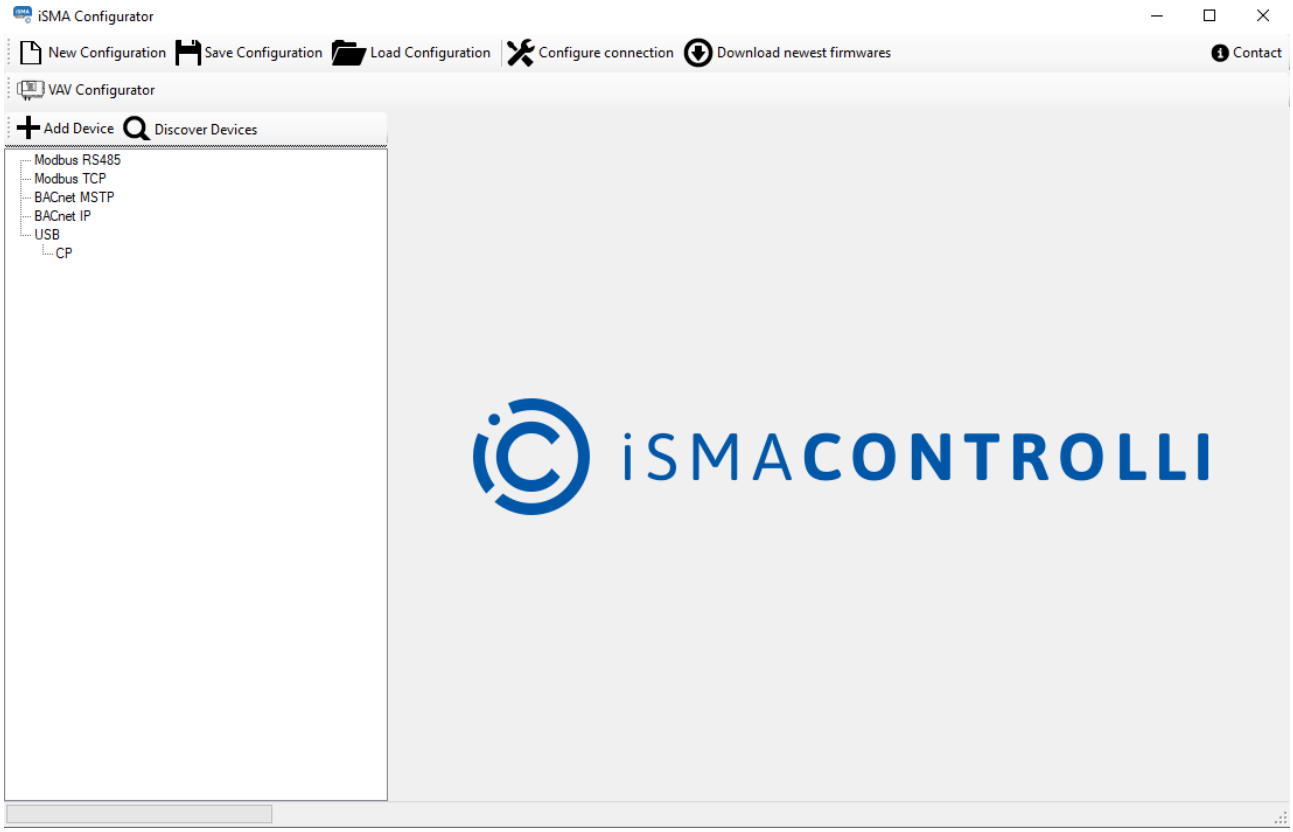


Figure 8. CP panel connected with USB

6 Main Features

After selecting a marked device, the following functions are available:

- Upgrade;
- Reset Module;
- Reload Settings;
- Default Settings.

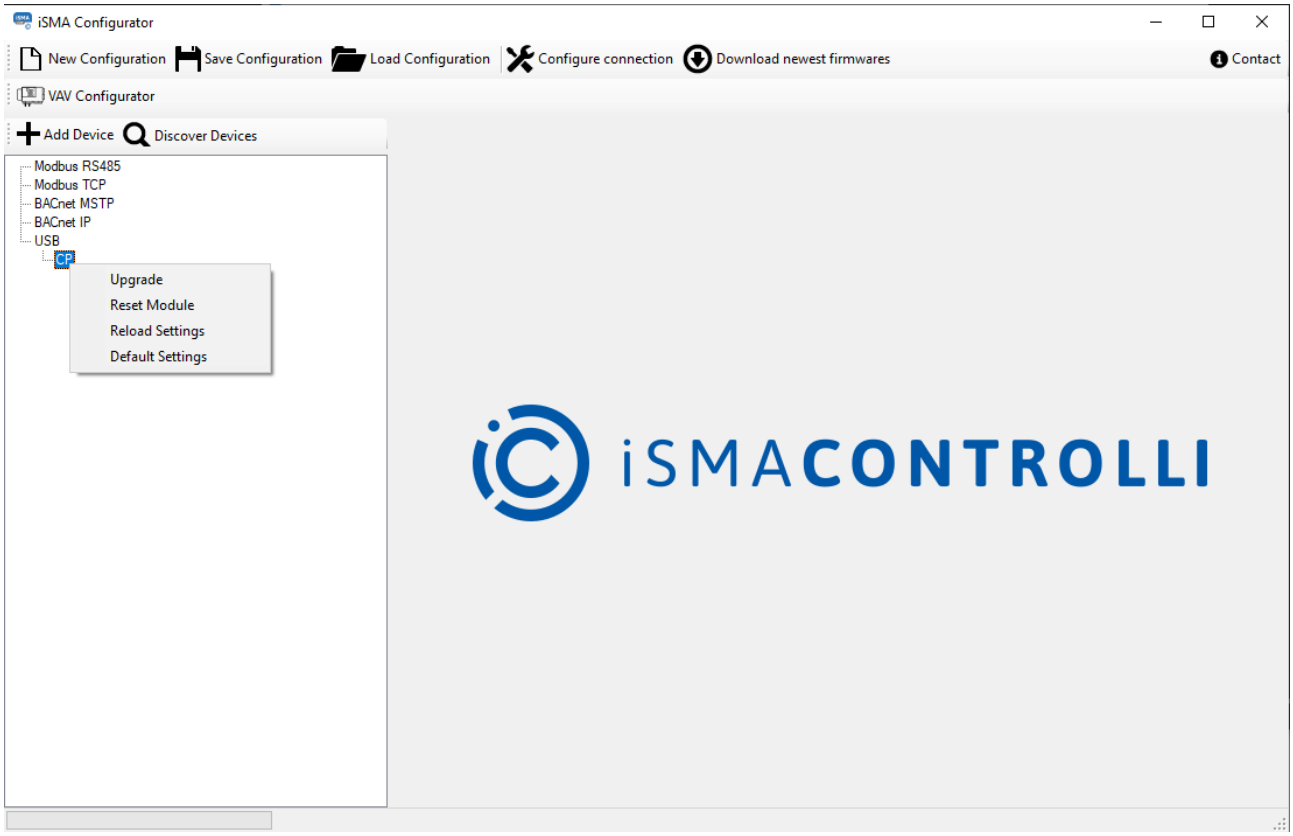


Figure 9. Actions

6.1 Upgrade

The Upgrade function allows the user to upgrade the firmware of the device if necessary. Before starting the Upgrade process, it is recommended to check if new versions of firmware are available by clicking the Download newest firmwares button. The Upgrade function can be executed only for one device at a time.

Note: Devices with hardware version older than 2.0 and/or firmware versions older than 6.0, cannot be upgraded via BACnet.

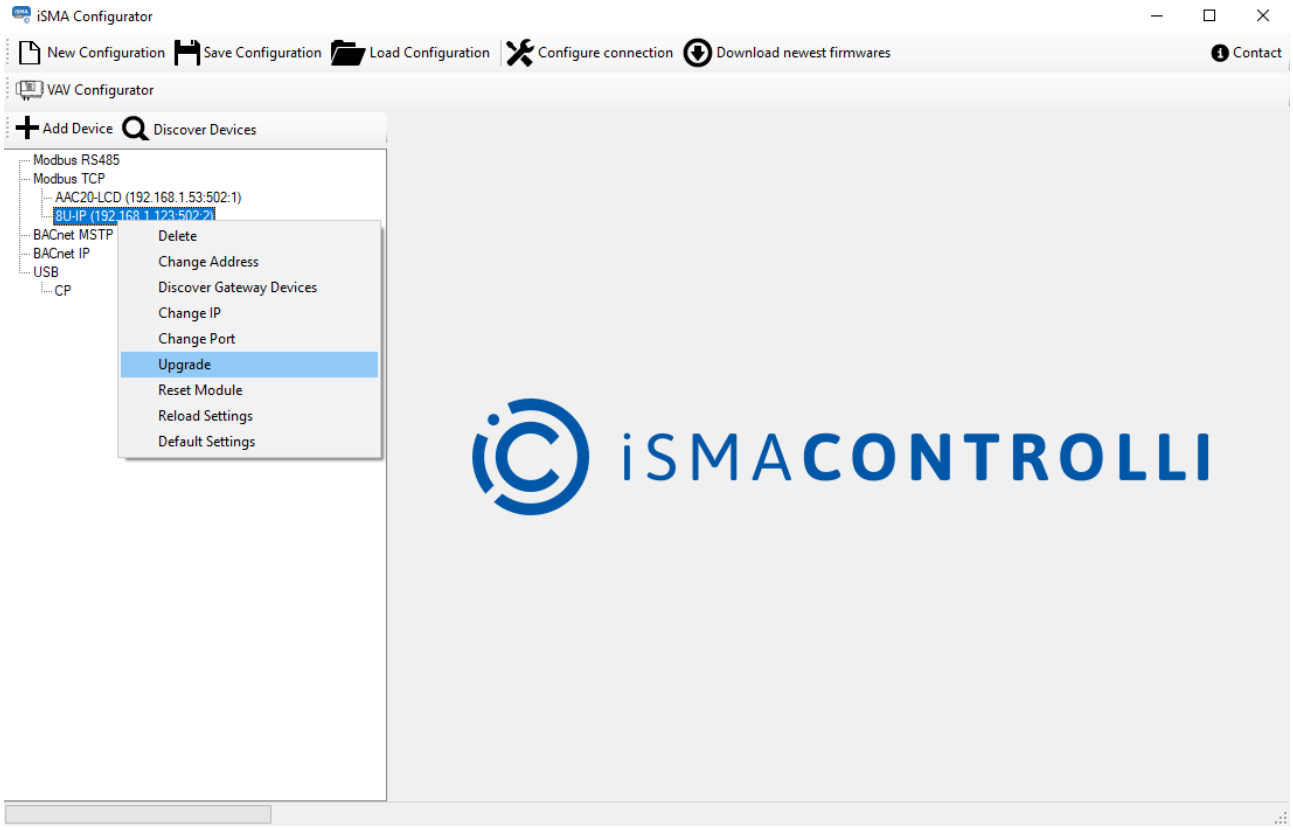


Figure 10. Upgrade option

6.2 Reset

Resetting the module should be the first action that the user performs in case of problems with the controller or application functionality in general. The restarting procedure forces the application to start the execution of the program from the beginning and initiates reading raw values for inputs.

Note: It is recommended to restart the application before contacting the technical support.

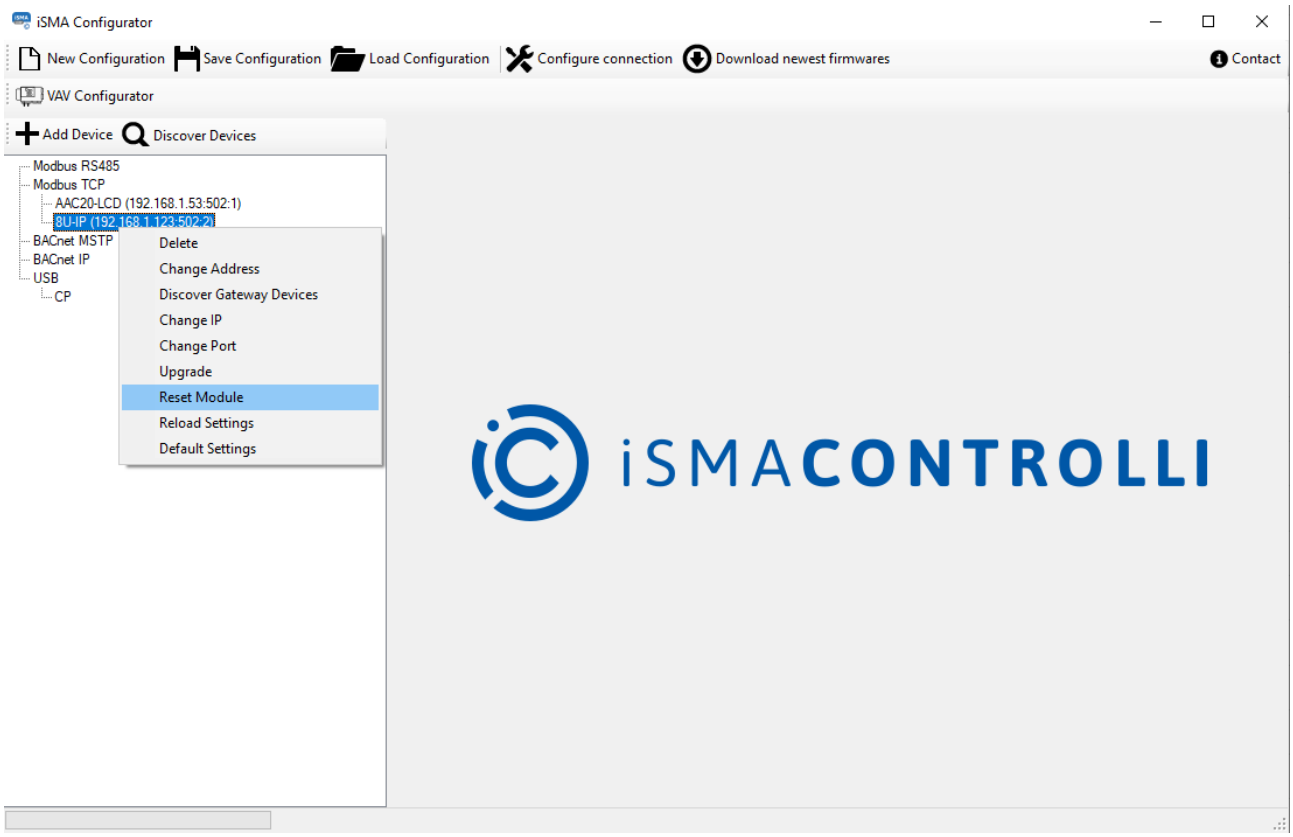


Figure 11. Resetting device

6.3 Reload Settings

In order to be able to make all required changes in communication, without losing connection with the module, the Reload Settings function was implemented. The Reload Settings function initializes all the previously changed communication parameters.

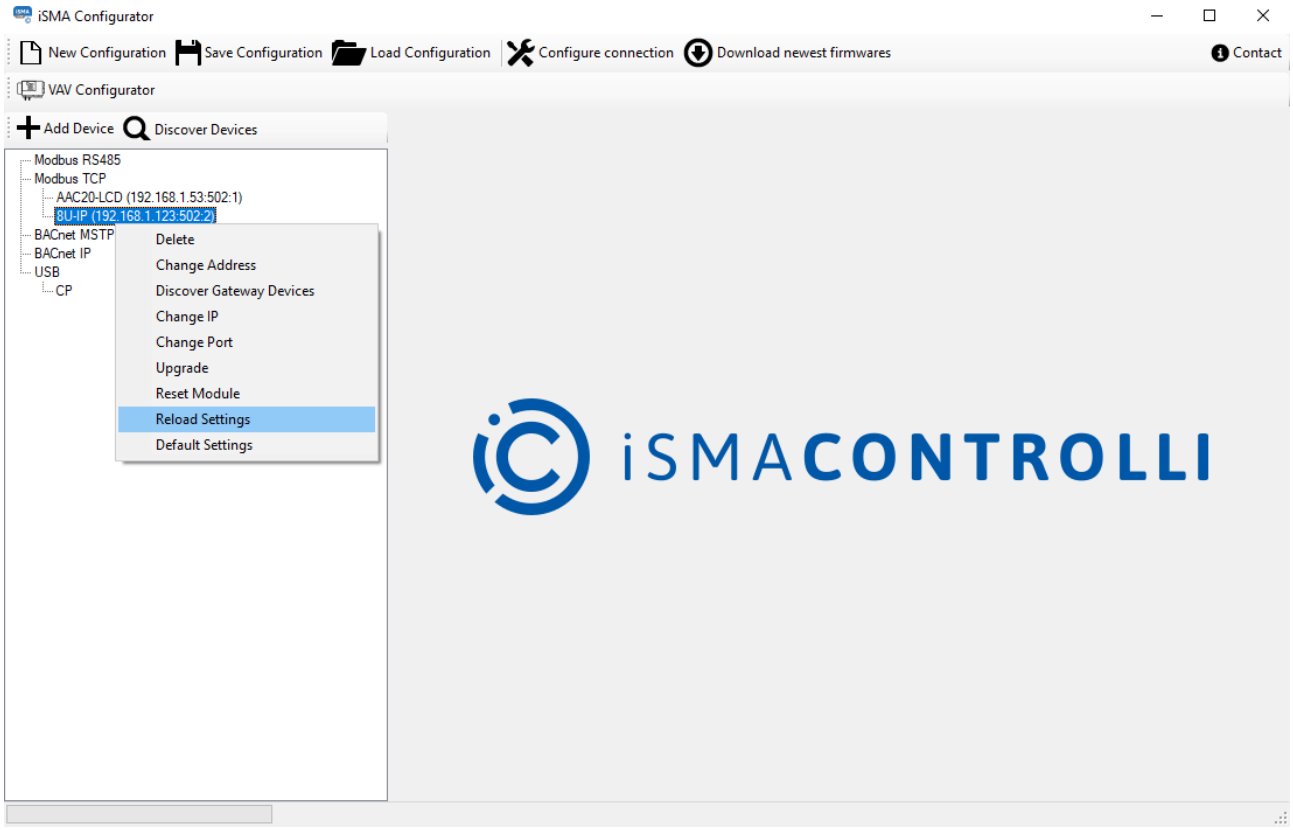


Figure 12. Reload settings

6.4 Default Settings

The Default Settings button sets all parameters of the controller to their initial (default) values. All the NV parameters in the application are set to their default values. All communication settings that are not configured with DIP switches are set to their default values as well.

Warning!

The Default Settings procedure erases all settings previously made by user!

Note: The procedure of resetting to default values is recommended in the following cases:

- controlled physical object has been replaced;
- the role of the controller in the network has been changed with regard to the master-slave configuration;
- the application does not work properly and restart of the application with its default parameters can help.

To perform the action of setting to default values, select the device and press the Default Settings button. The iSMA Configurator sends a special request to the device.

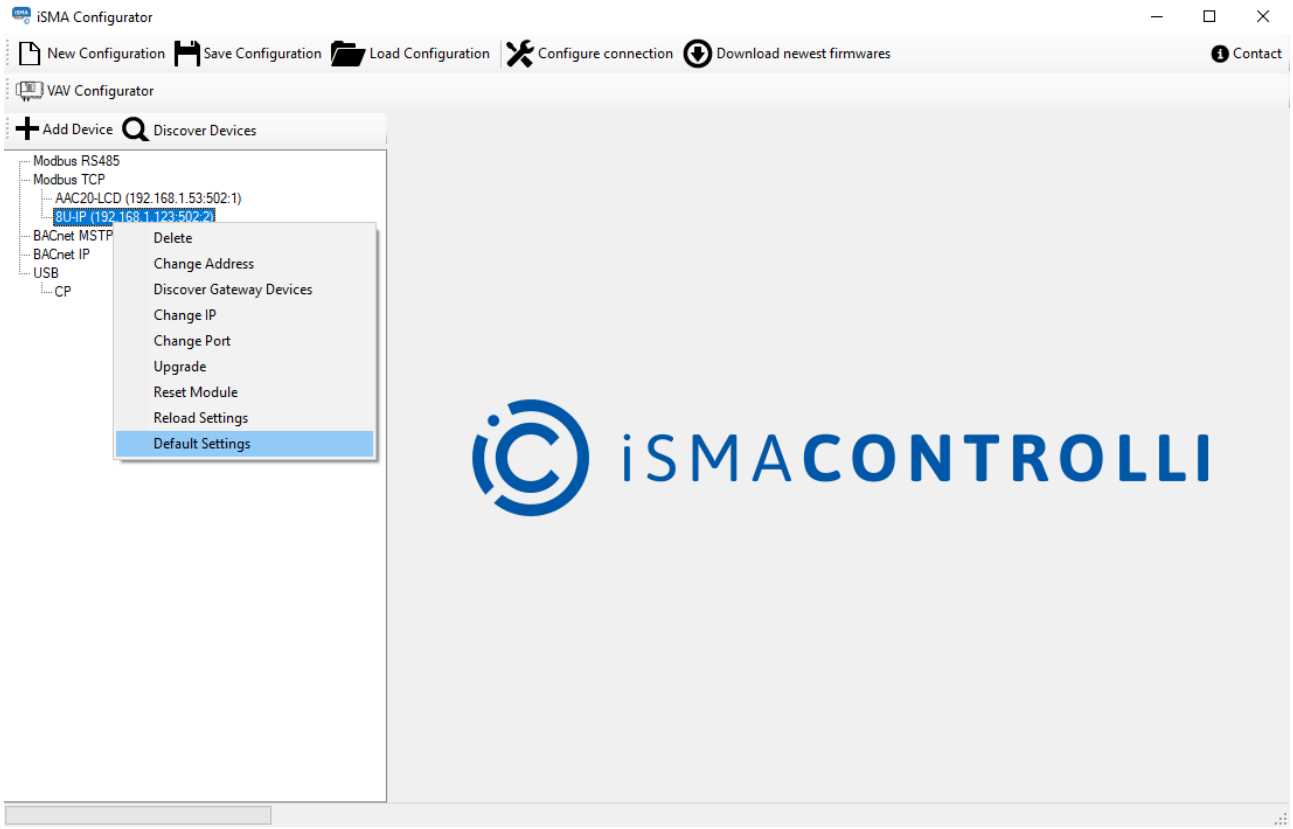


Figure 13. Default settings

7 Device Configuration

There are two ways to configure devices in the iSMA Configurator: in the online and offline mode. If a device is discovered, double click it and choose one of the above mentioned methods.

7.1 Offline

In case of the offline mode, it is crucial to click Read Module in order to learn what are the configurations of the chosen module at this moment. Successful Read operation is confirmed by a pop-up window with a Read successful message. After that, the user can make all changes and send them to the controller by clicking the Write Module button. Successful Write operation is confirmed with pop-up window with a Write successful message.

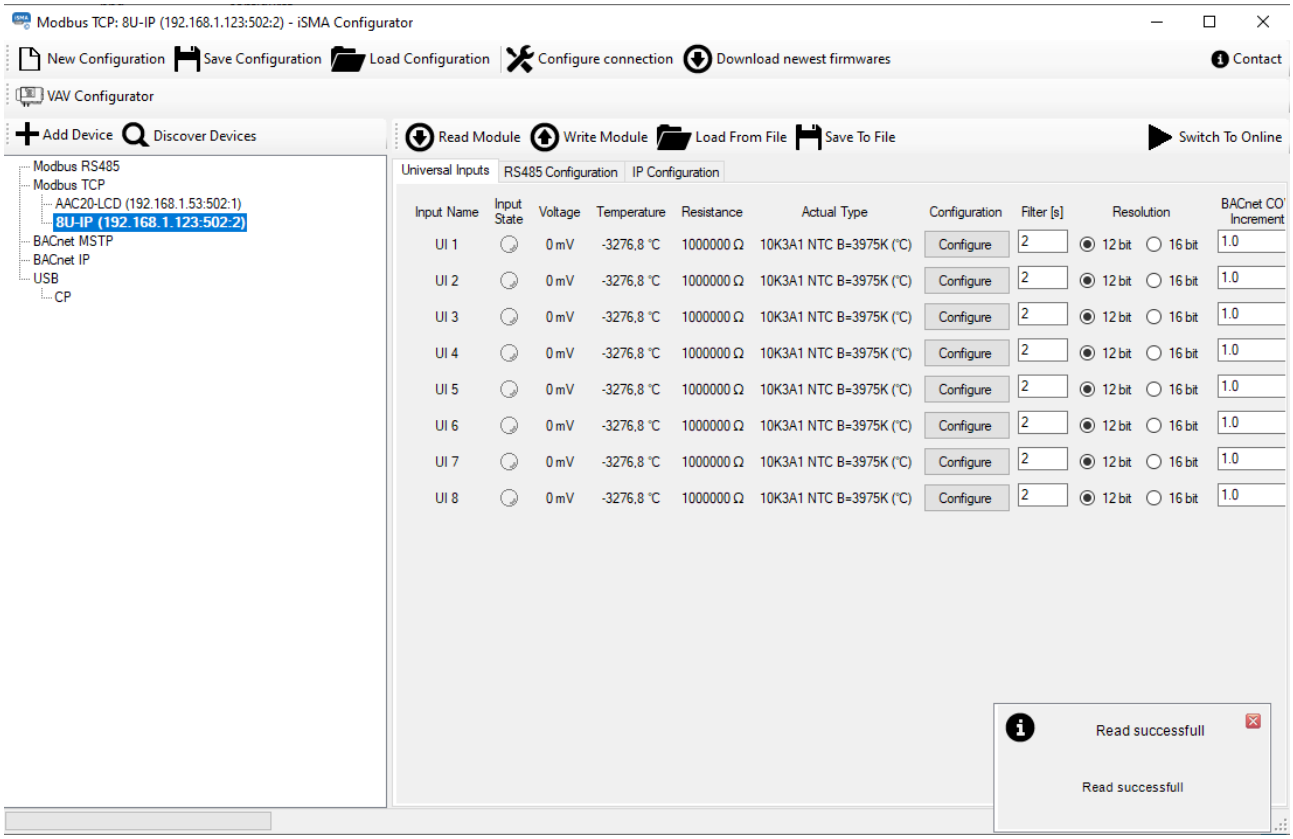


Figure 14. Offline configuration

7.2 Online

In order to configure the module in the online mode, click the Switch to Online button. In this mode, each change in configuration is immediately sent to the controller. The Read module and Write module options are not available in this mode.

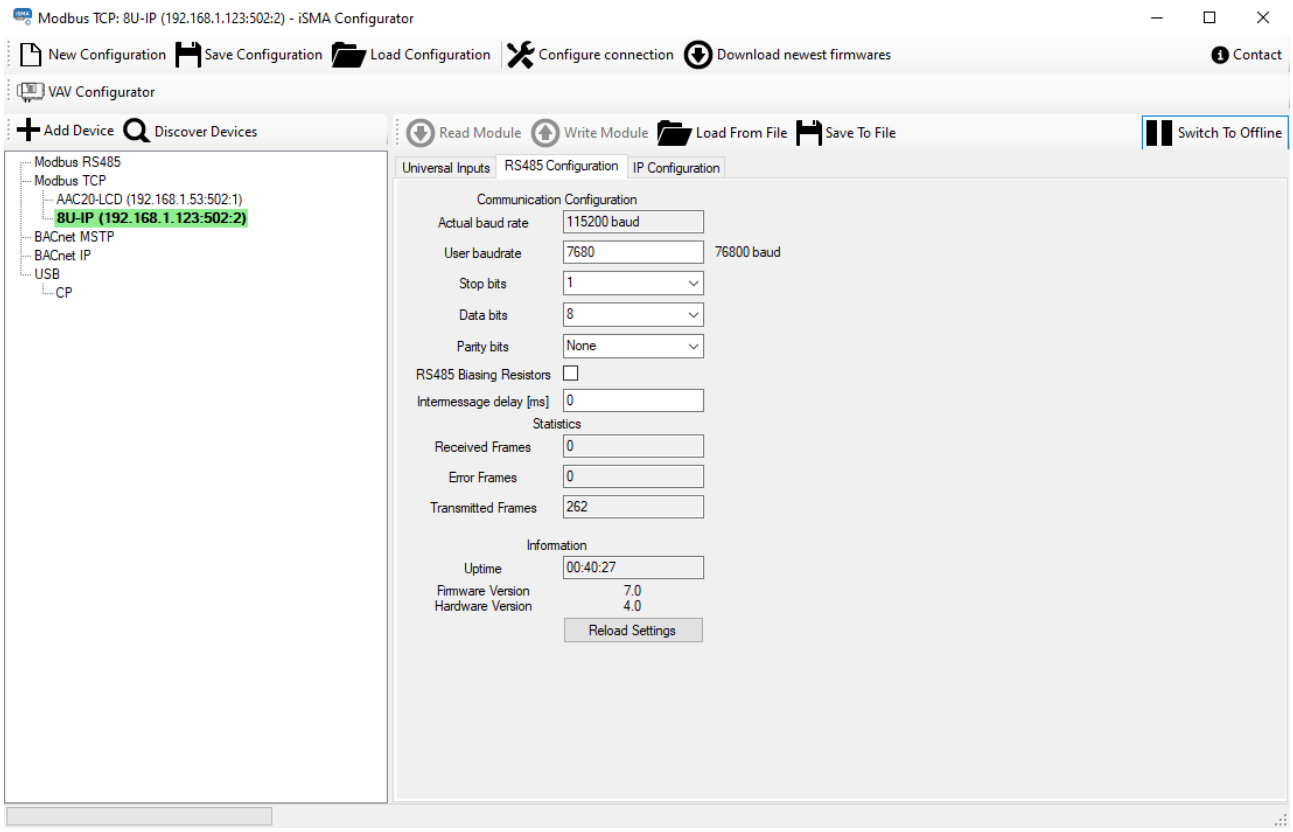


Figure 15. Online configuration

8 Projects

For user convenience, the iSMA Configurator is equipped with a configuration database, which can be used for creating lists of the devices discovered in every project. For example, if the user has three projects (buildings) with their unique lists of devices, there is no need to perform the discovery process each time the user connects to the network. Projects can be saved for each field object and stored on the local PC for future use.

The process of saving the configuration is very simple. After finishing the discovery, the user should save the configuration using Save Configuration button. The configuration file is saved to the location chosen by the user, and it can be used next time by clicking the Load Configuration button and selecting the appropriate configuration file. The New Configuration button is used to clear the list of discovered devices and create a new empty project. Each time the iSMA Configurator is opened for the first time, a new project is created.

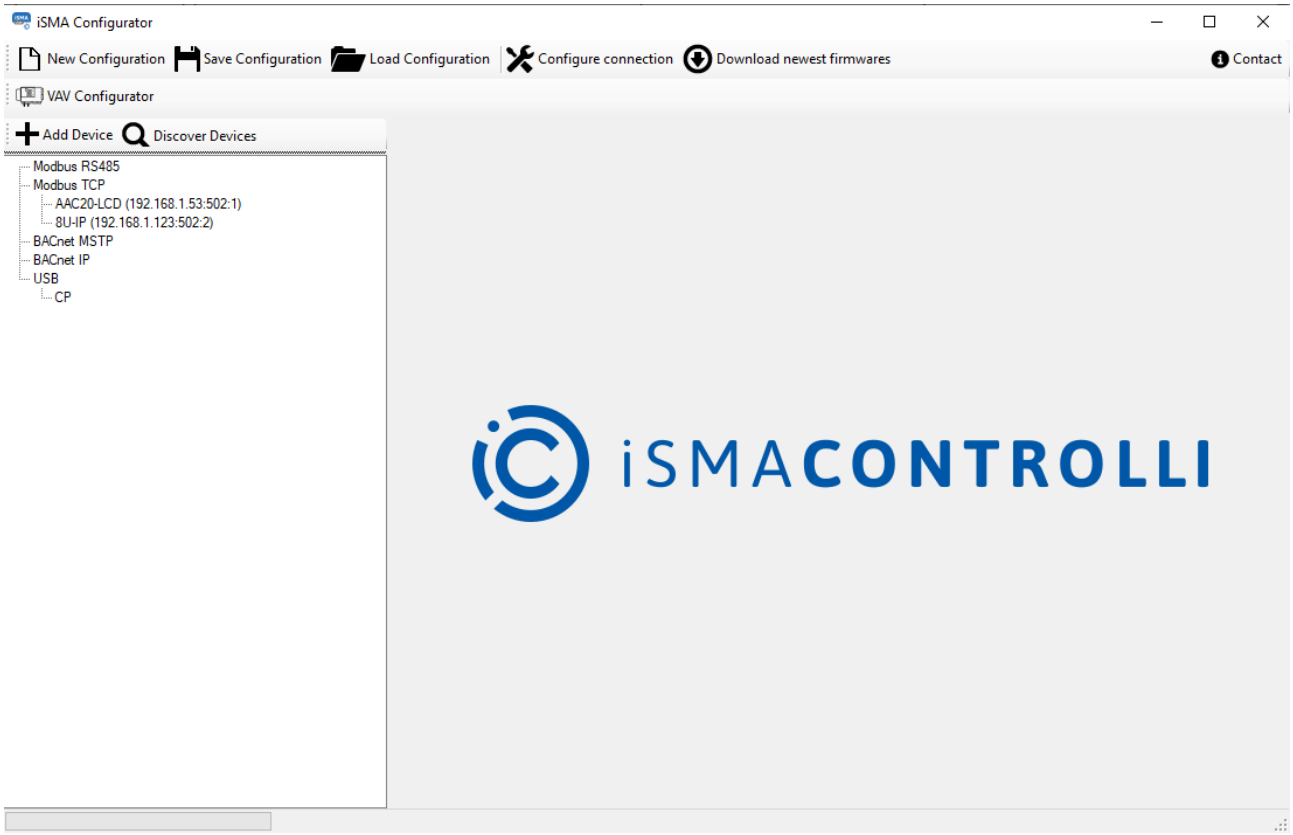


Figure 16. Project configuration buttons available in the main menu bar

9 Discovering Devices

If the connection to the Modbus or BACnet network is properly set up, it is possible to discover all devices physically connected on the bus. The discovering process involves recognizing the type of the device along with its address in the network. Each discovered device is automatically added to the table of the current project, so that the user does not need to know the type, address, and number of devices connected on the bus. The discovering process is fast, and it is recommended to run it at the beginning to have an overview of the whole network.

It is possible to start the discovering process by pressing the Discover Devices button or by right-clicking the protocol in the navigation tree. The discovering process requires some individual settings depending on the protocol type.

Press the Discover button to run the identification process. It is possible to abort this process without adding any devices to the table in the project, by pressing the Cancel button. If the number of already identified devices is satisfactory, the user can stop the further process and all he needs to do is to add the devices found to the table by pressing the Finish button.

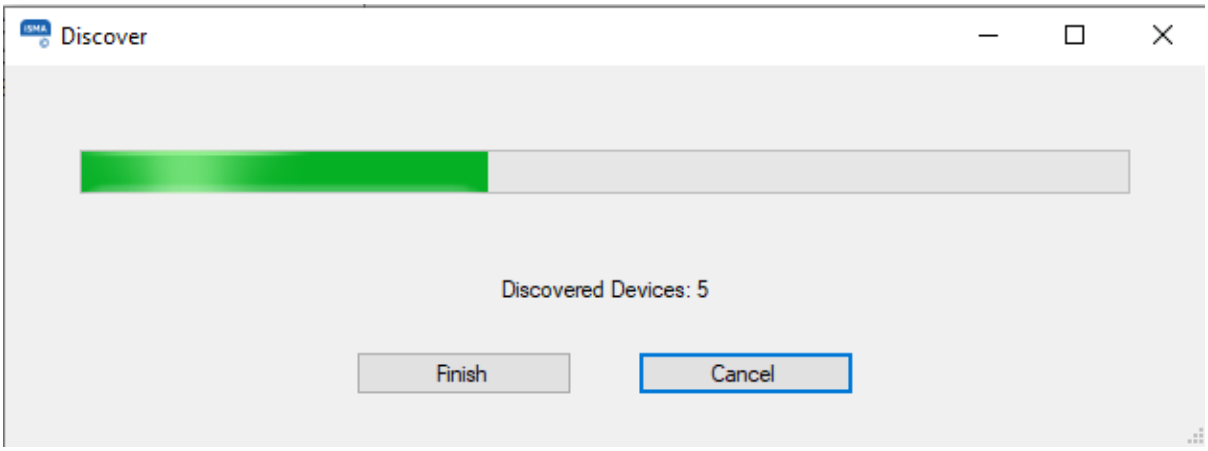


Figure 17. Discovering devices

There are five types of possible discovery methods:

- devices directly connected to RS485 port via Modbus RTU;
- devices directly connected to RS485 port via BACnet MS/TP;
- devices connected to IP port via Modbus TCP/IP;
- devices connected to IP port via BACnet IP;
- devices with RS485 port connected to an IP gateway device via Modbus TCP/IP.

The above situations are described in the following sections.

9.1 Modbus TCP/IP

It is possible to discover the devices via Modbus TCP/IP if the network is built on IP devices. In order to start discovering, make sure that the PC is connected to the same network as the devices, and it has IP address in the same network segment.

The example of device connection is shown in the figure below.

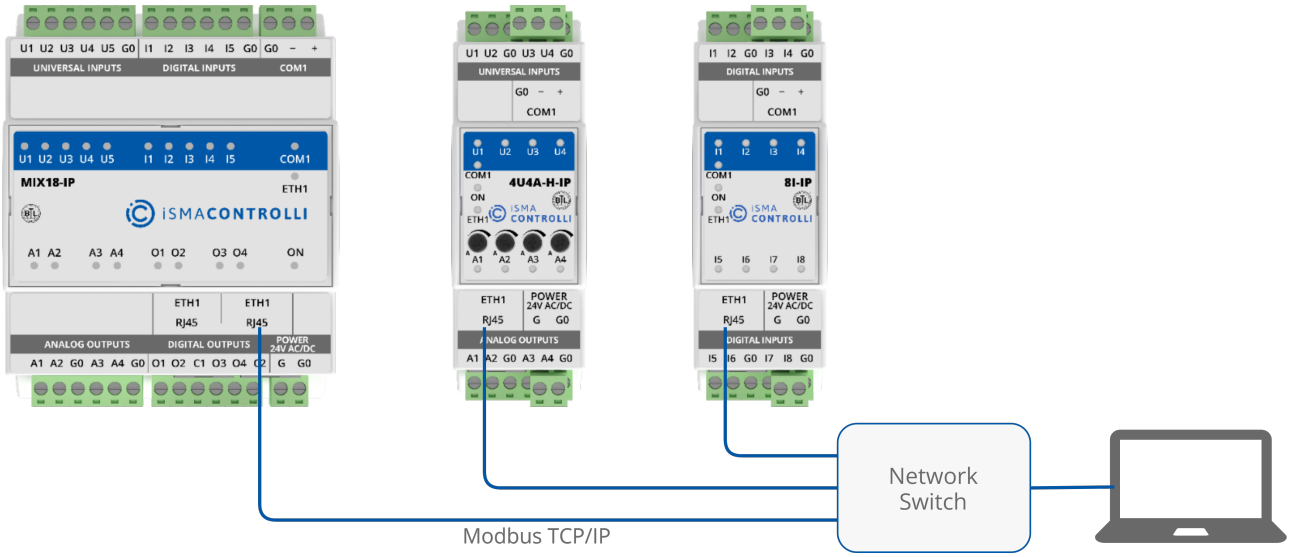


Figure 18. Device connected via Modbus TCP/IP

In case of the Modbus TCP, the devices discovered recently appear in the list only with IP address and information that they are not identified. In order to make any changes to the devices, it is crucial to identify them. To do so, right click on the device in the tree and choose Identify and Discover Gateway Devices option.

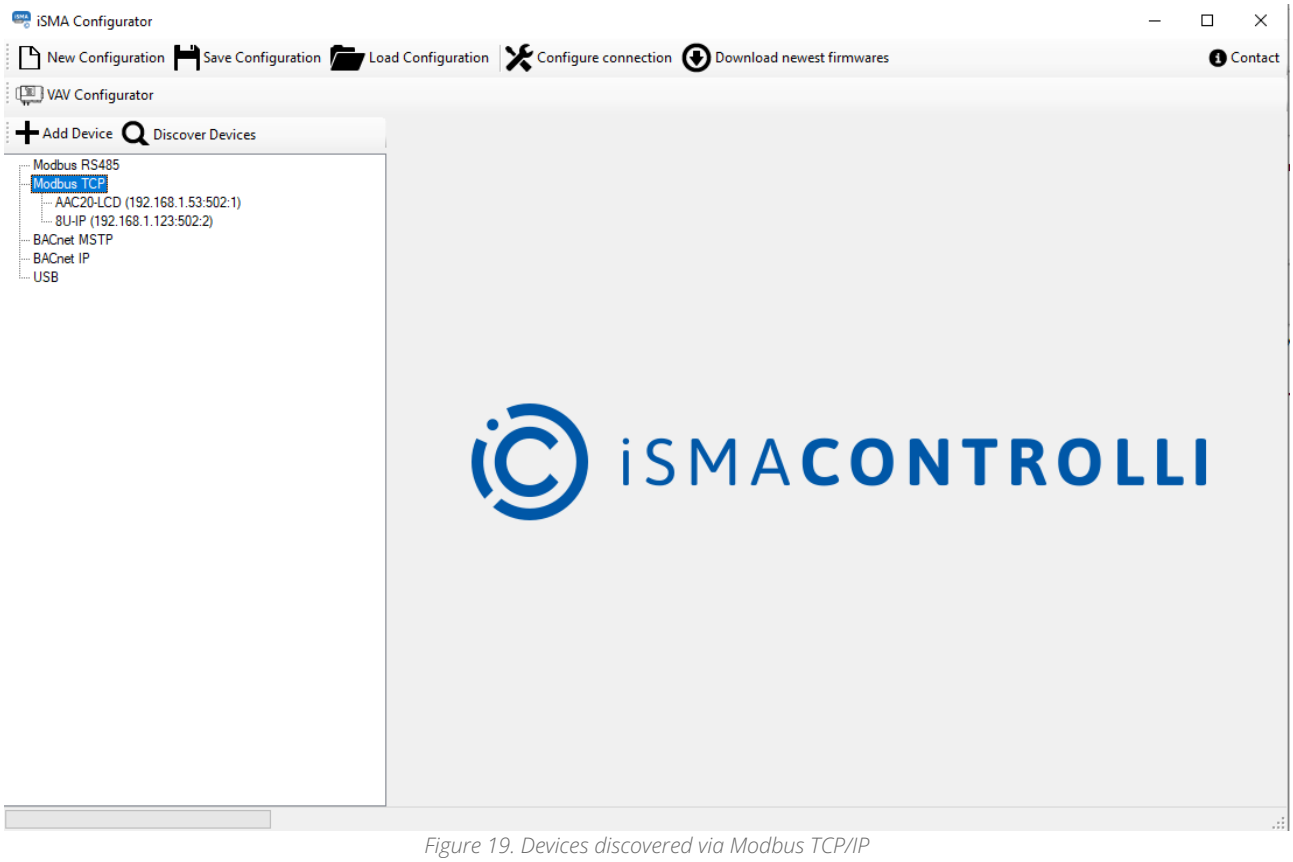


Figure 19. Devices discovered via Modbus TCP/IP

9.2 BACnet IP

It is possible to discover devices via the BACnet IP if the network is built on IP devices. In order to start the discovery, make sure that the PC is connected to the same network as the devices and has the IP address in the same network segment.

The example of device connection is shown in the figure below.

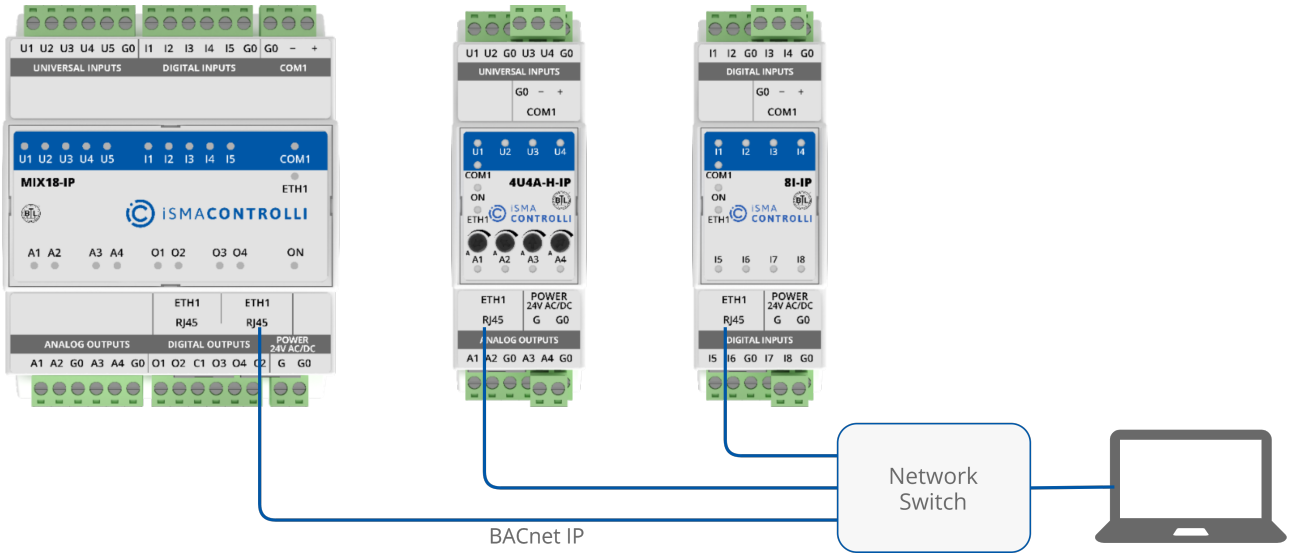


Figure 20. Devices connected via BACnet IP

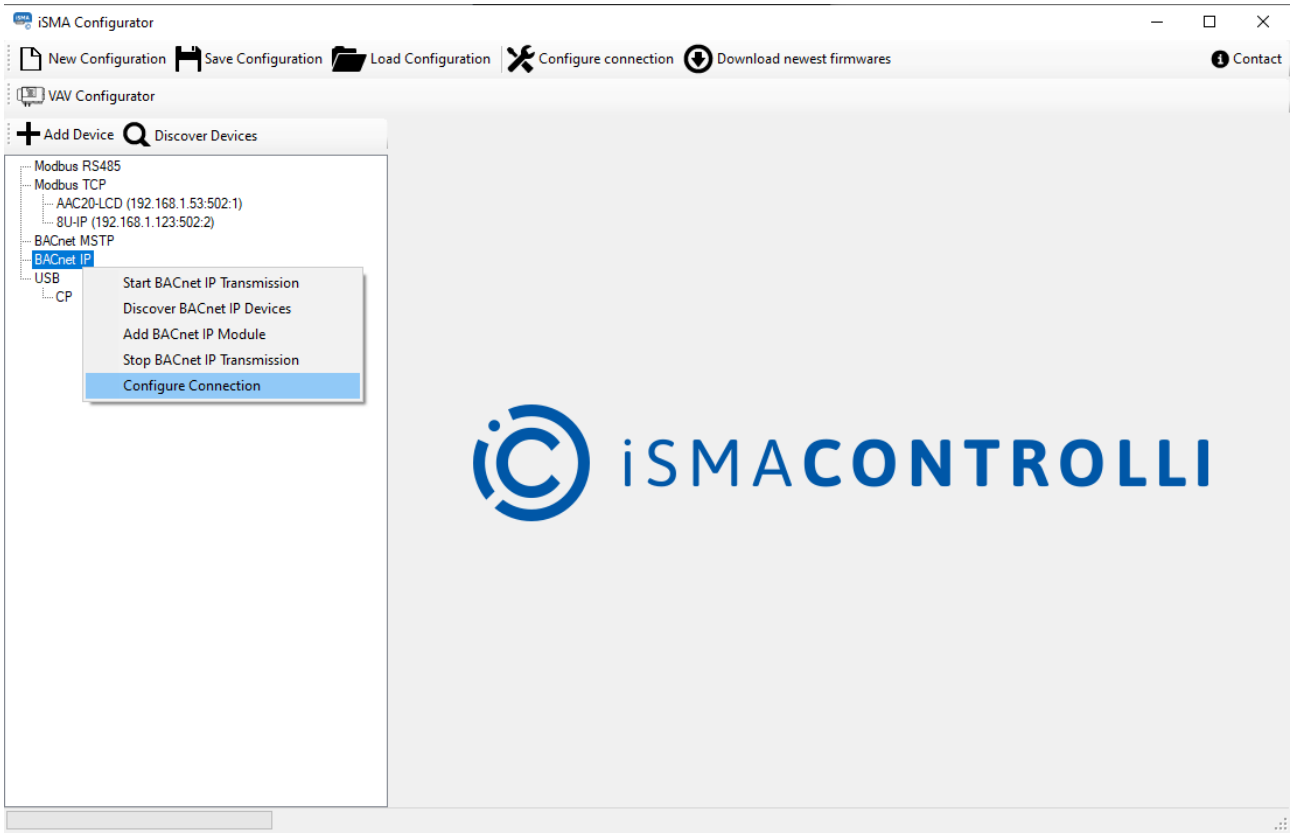


Figure 21. BACnet IP configuration

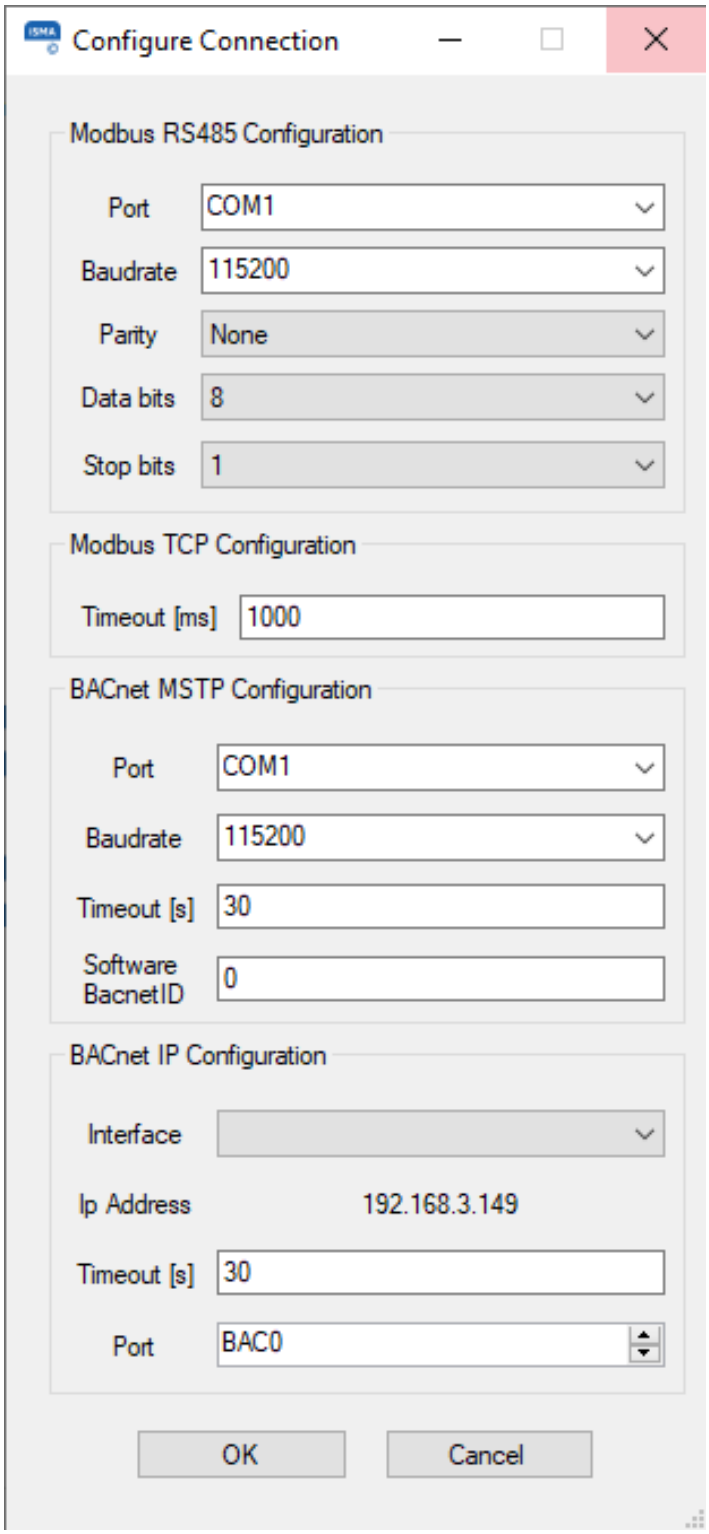


Figure 22. BACnet IP configuration parameters

Before starting the discovery process, it is necessary to start the BACnet IP Transmission. If the user neglects to do so, the iSMA Configurator reminds to do it in a pop-up window.

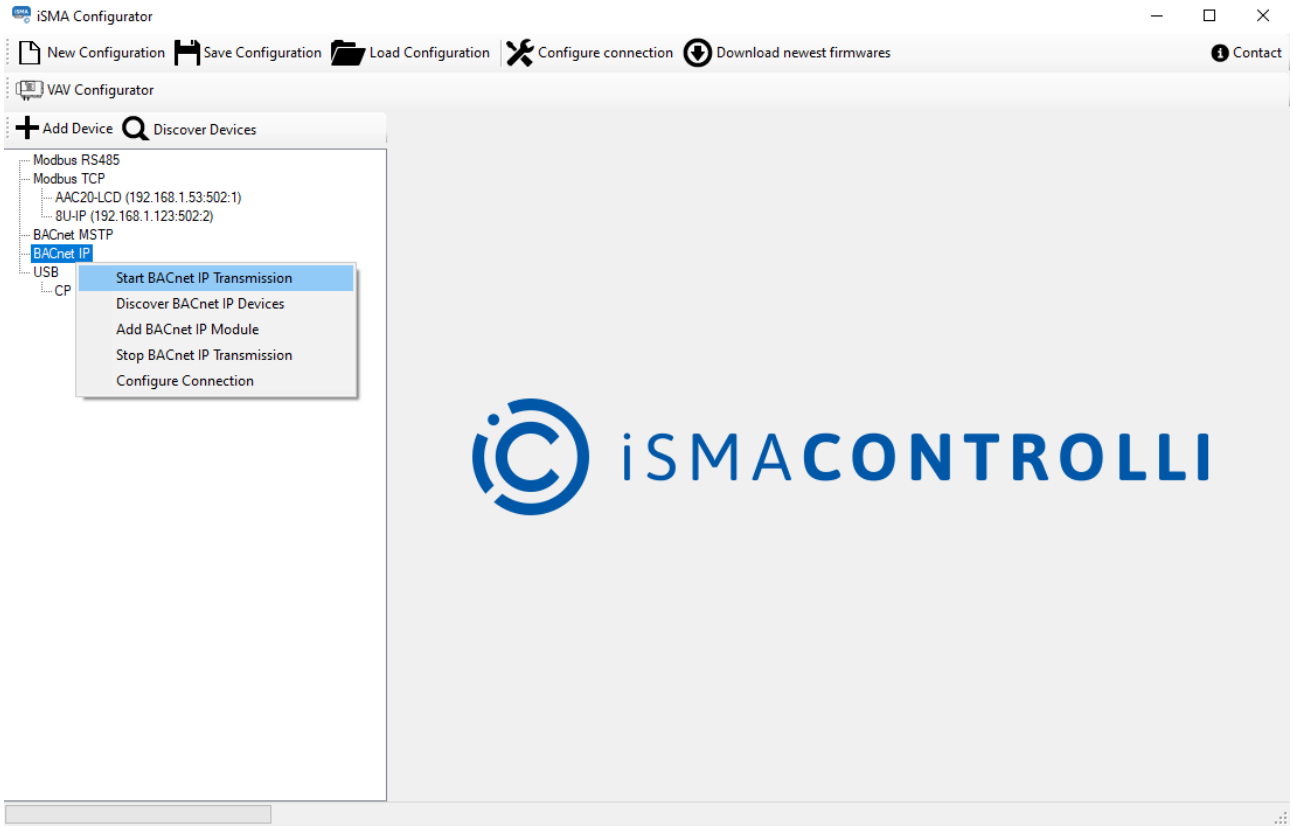


Figure 23. Starting BACnet IP transmission

Note: If all devices are not found after the first scanning process is complete, increase the timeout value. If some missing controllers are still found, add the missing devices manually by pressing the Add Device button. The devices discovered or added manually become visible under the BACnet IP branch with their ID and IP address, as in the figure below.

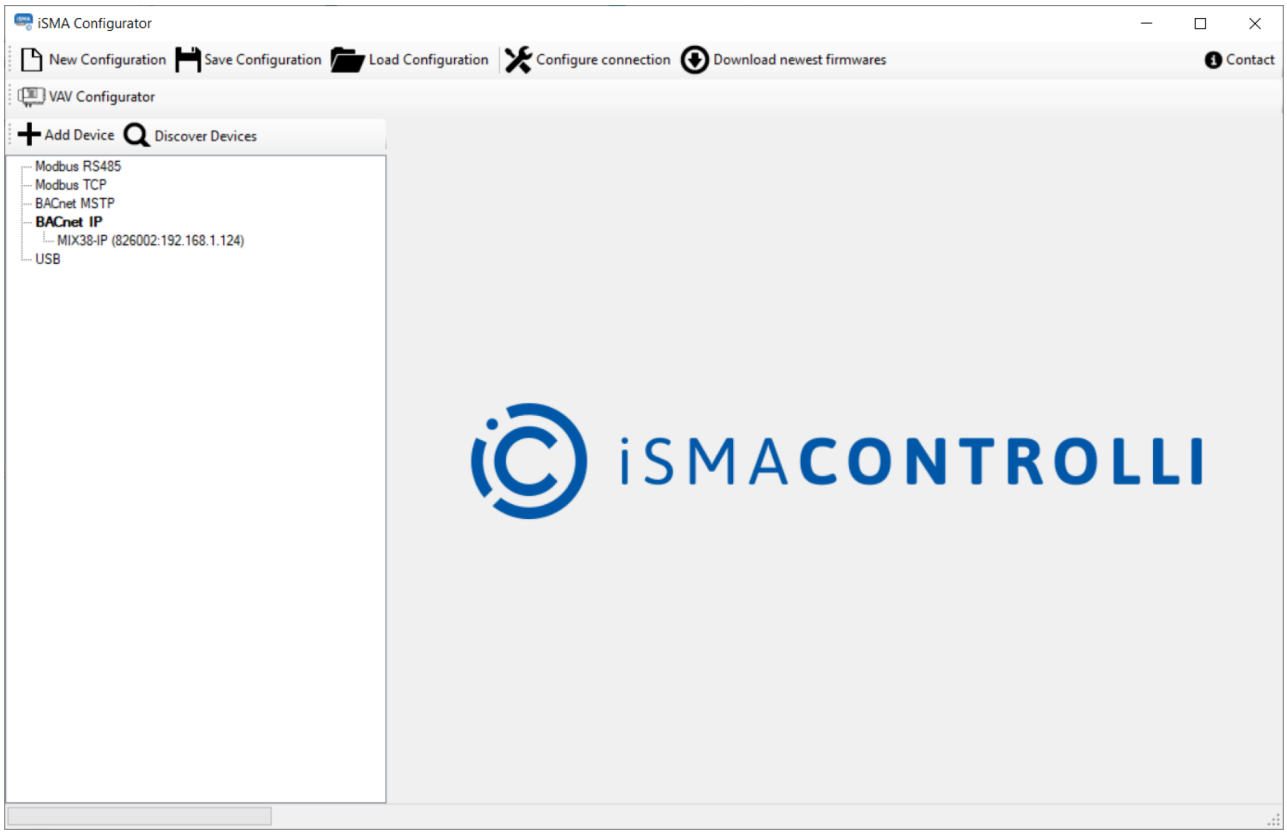


Figure 24. Device discovered via BACnet IP

9.3 RS485 Connected to IP Gateway

It is a common practice to have one IP gateway device in the network and a couple of other connected via RS485. In such case, the PC with the iSMA Configurator should be connected to the same network as the gateway device and have the IP address in the same network segment. Make sure that the RS485 configuration parameters in the gateway device are set accordingly, so that it is possible to discover the Modbus devices connected to the bus.

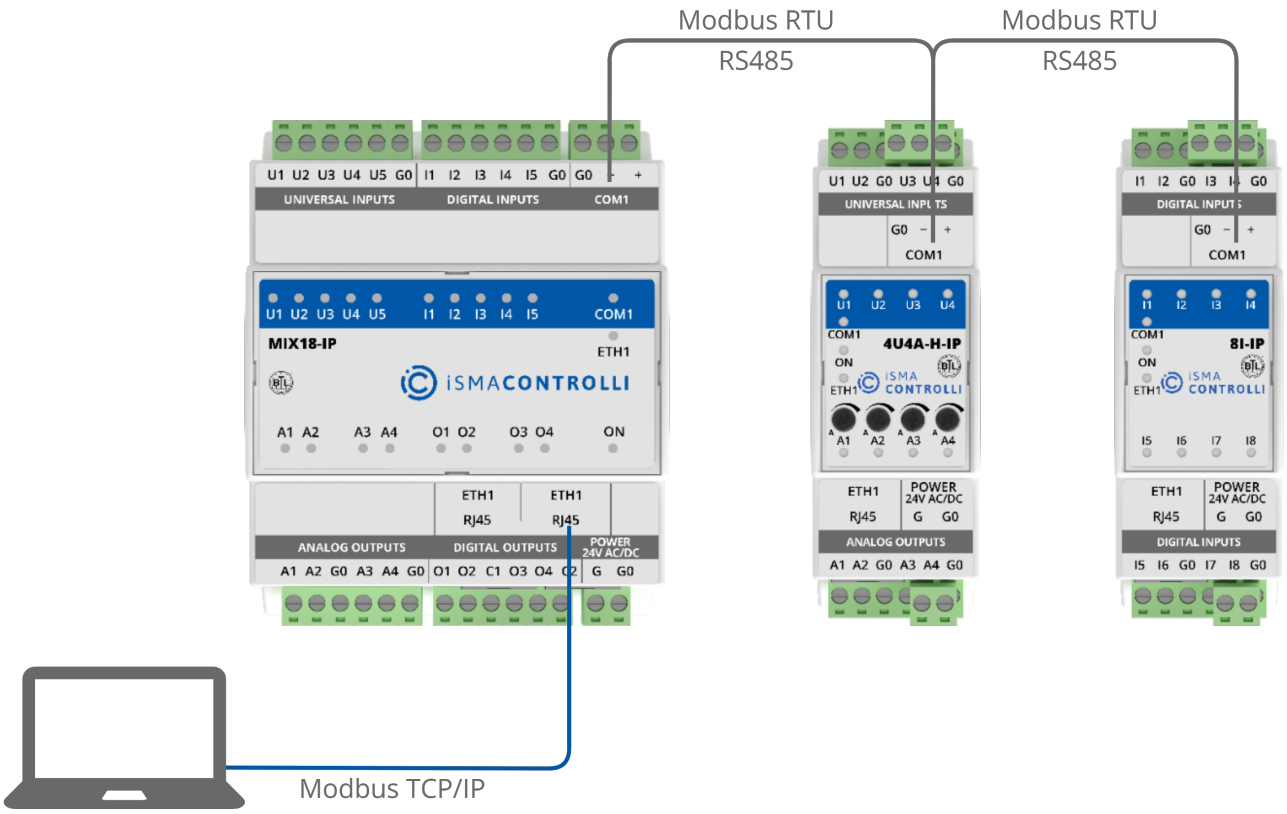


Figure 25. Devices connected to IP gateway via RS485

To make any changes to the device it is crucial to identify it and discover the gateway devices. Discovered gateway devices appear below in the new branch with their gateway IP address and Modbus address at the end.

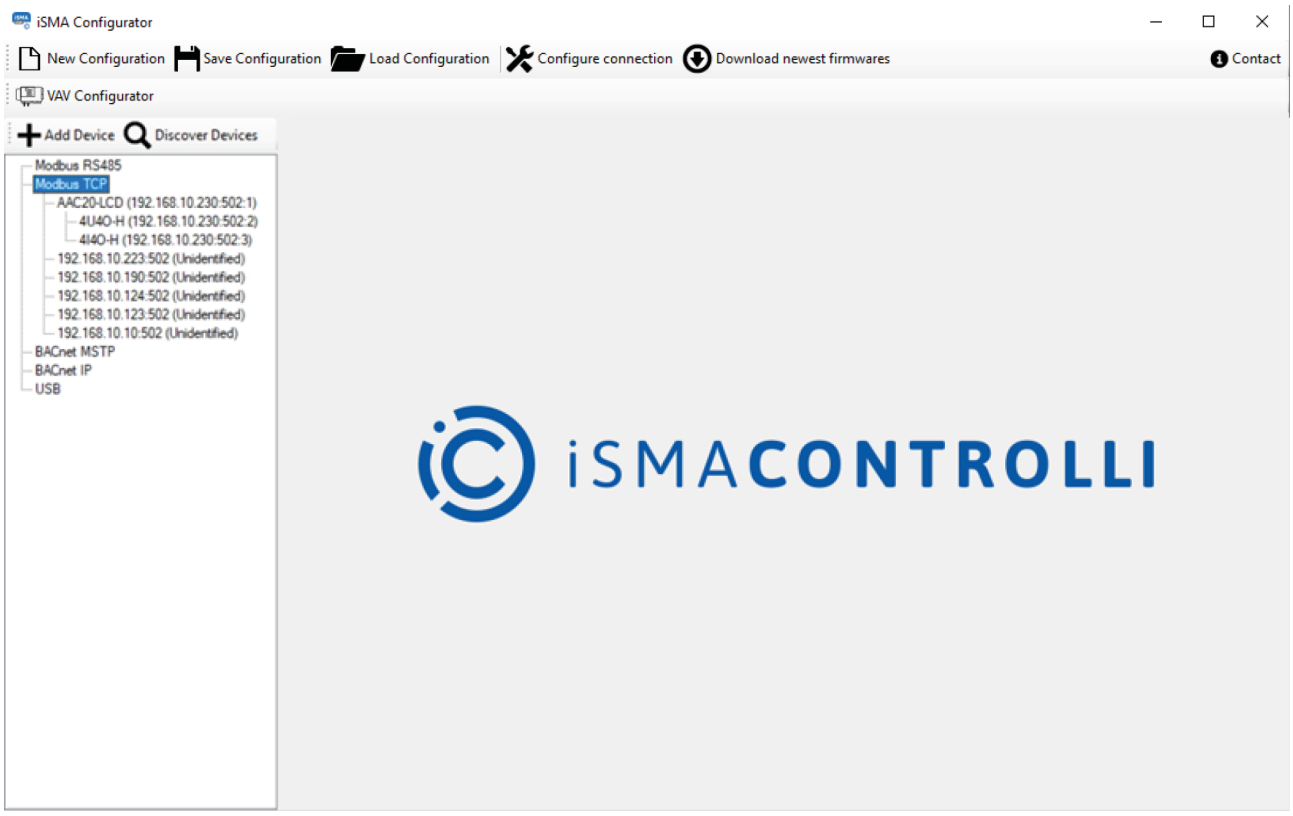


Figure 26. Gateway devices discovered via Modbus TCP

9.4 BACnet MS/TP

Except for standard configurations (COM Port; Baud Rate) for BACnet protocol, it is required to define the timeout and Software BACnet ID. The user is asked to set the timeout in the Timeout [s] field to guarantee enough time to find all the devices on the BACnet bus. Choosing the correct value depends on the networks baud rate (inversely proportional) and the number of devices (proportional) connected to the BACnet bus.

The Software BACnet ID parameter allows for the user to change the software ID in order to make sure it is not duplicated on the network.

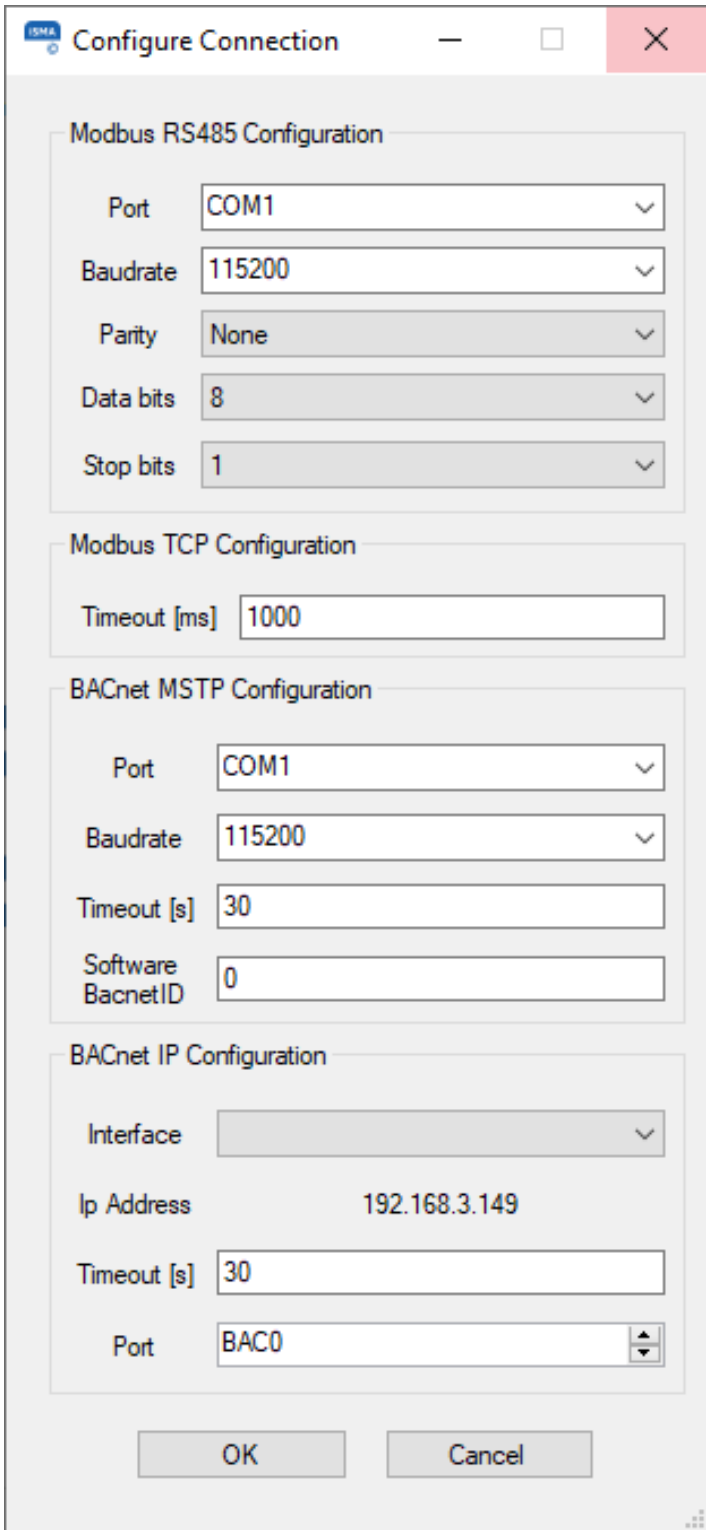


Figure 27. BACnet MS/TP configuration parameters

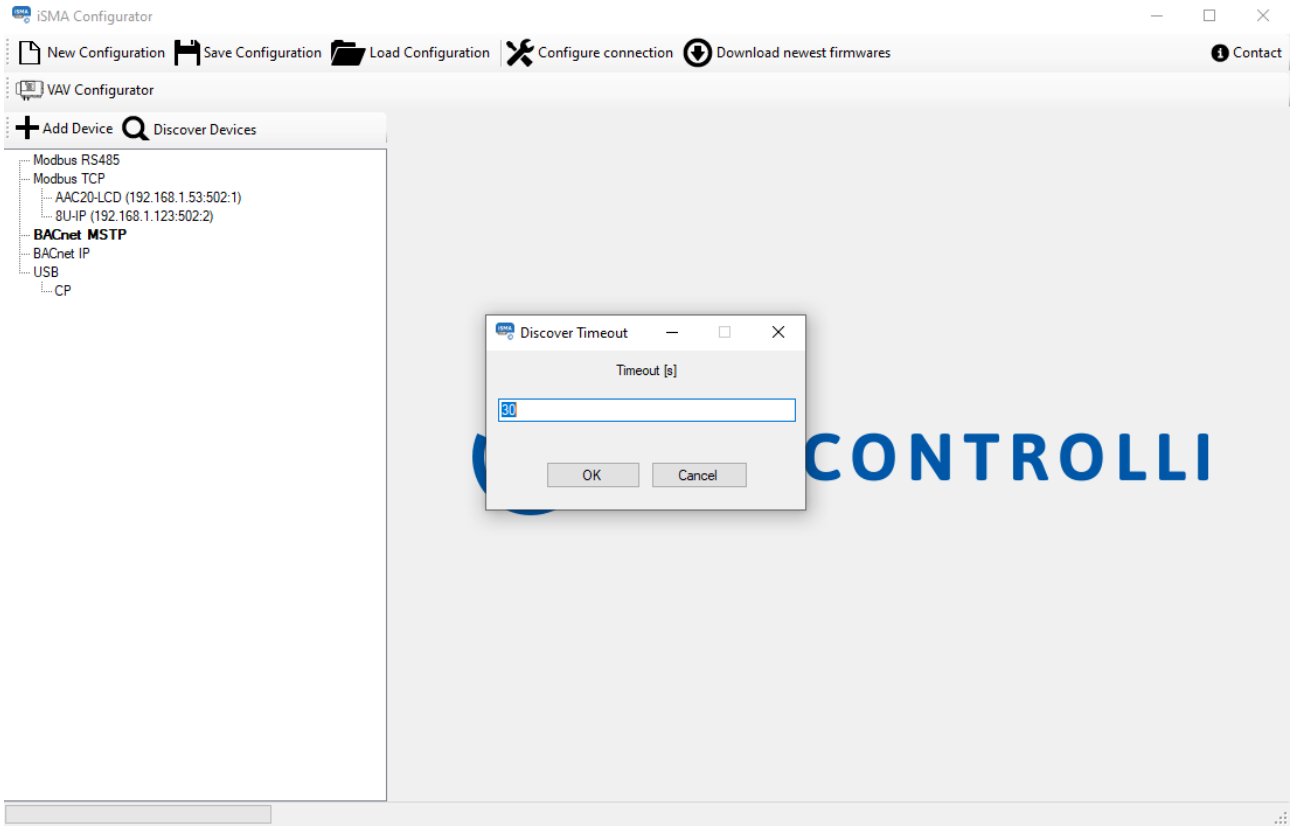


Figure 28. Discovering devices via BACnet MS/TP

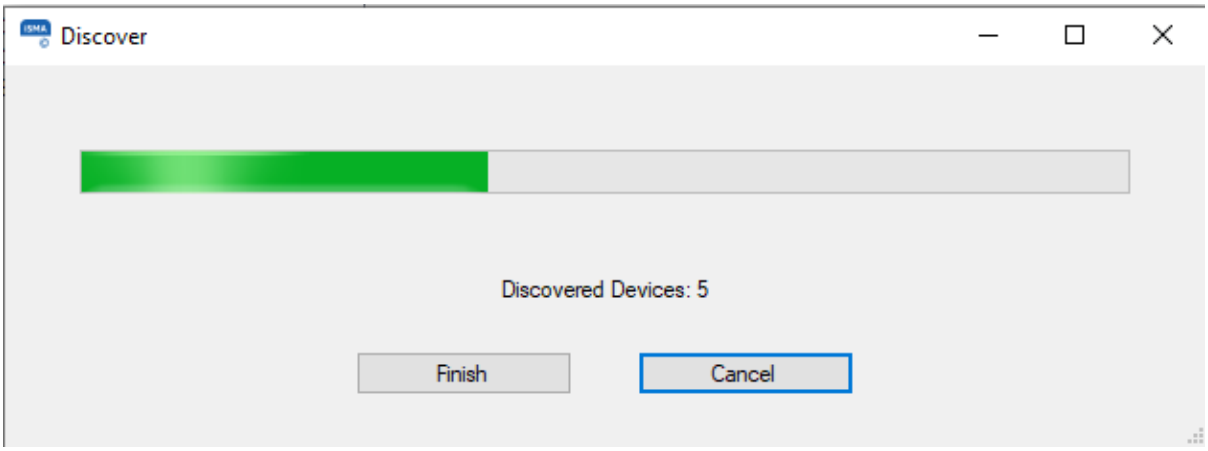


Figure 29. Discovering process

In case your PC is not equipped with RS485 port, it is required to have RS485/USB converter in order to start discovery process. It is important to check the communication parameters before starting the discovery. An example of device connection is shown in the figure below.

Note: Before connecting the PC to the iSMA Configurator running on the RS485 network, it is recommended to disconnect the master controller.

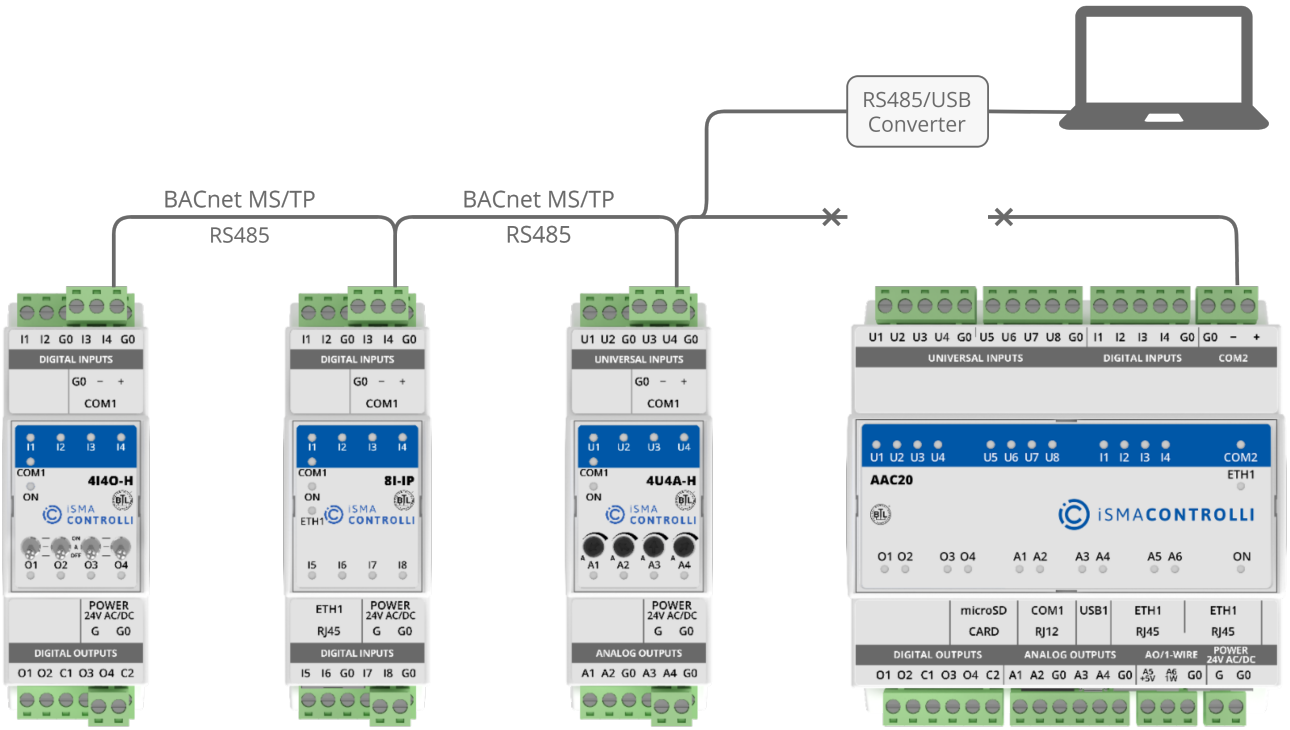


Figure 30. Devices connected via BACnet MS/TP

Note: If all devices are not found after the first scanning process is complete, increase the timeout value. If some missing controllers are still found, add the missing devices manually by pressing the Add Device button. The devices discovered or added manually become visible under the BACnet IP branch with their ID and IP address.

9.5 Modbus RS485

In its standard version, the Modbus protocol is not equipped with discovery function, but in case of iSMA Devices the discovery process can be performed using the iSMA Configurator software.

In case the PC is not equipped with the RS485 port, it is required to use a RS485/USB converter (iSMA-B-CVT-RS485) in order to start the discovery process. It is important to check the communication parameters before starting the discovery. The example of device connection is shown in the figure below.

Note: Before connecting the PC to the iSMA Configurator running on the RS485 network, it is recommended to disconnect the master controller.

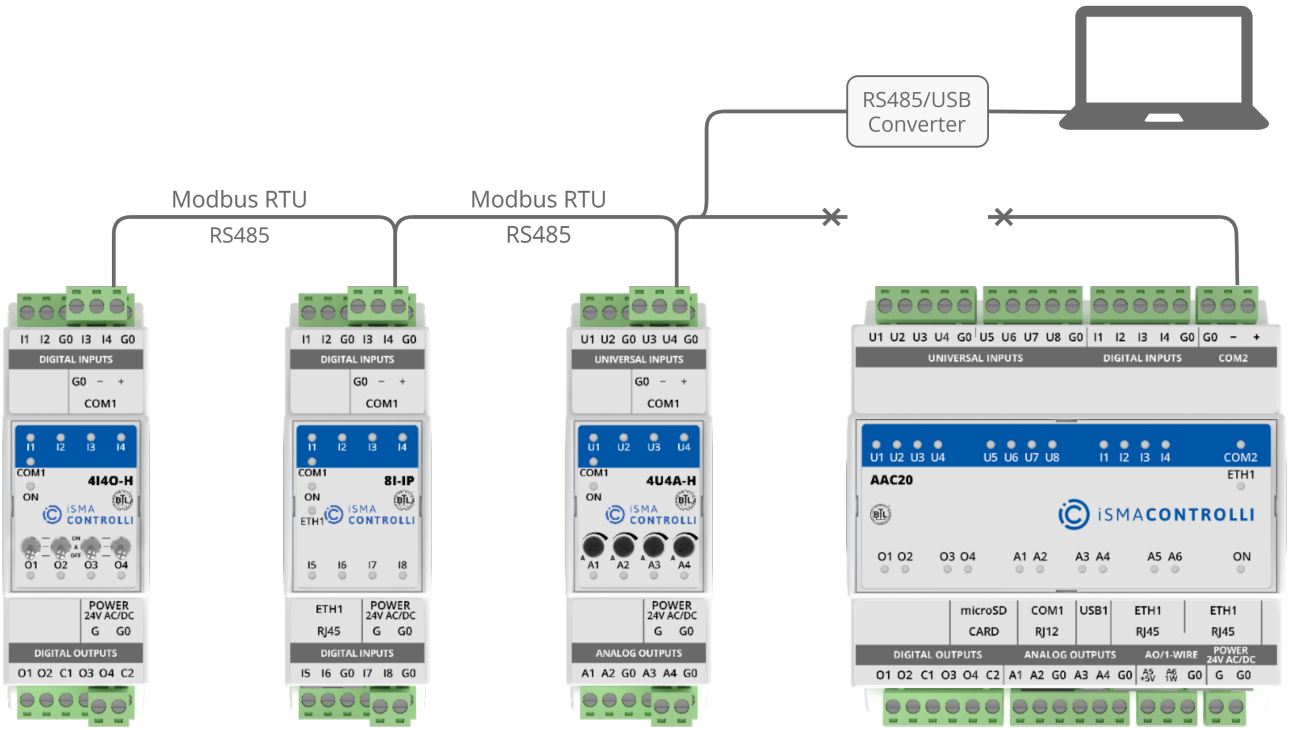


Figure 31. Devices connected directly via Modbus RS485

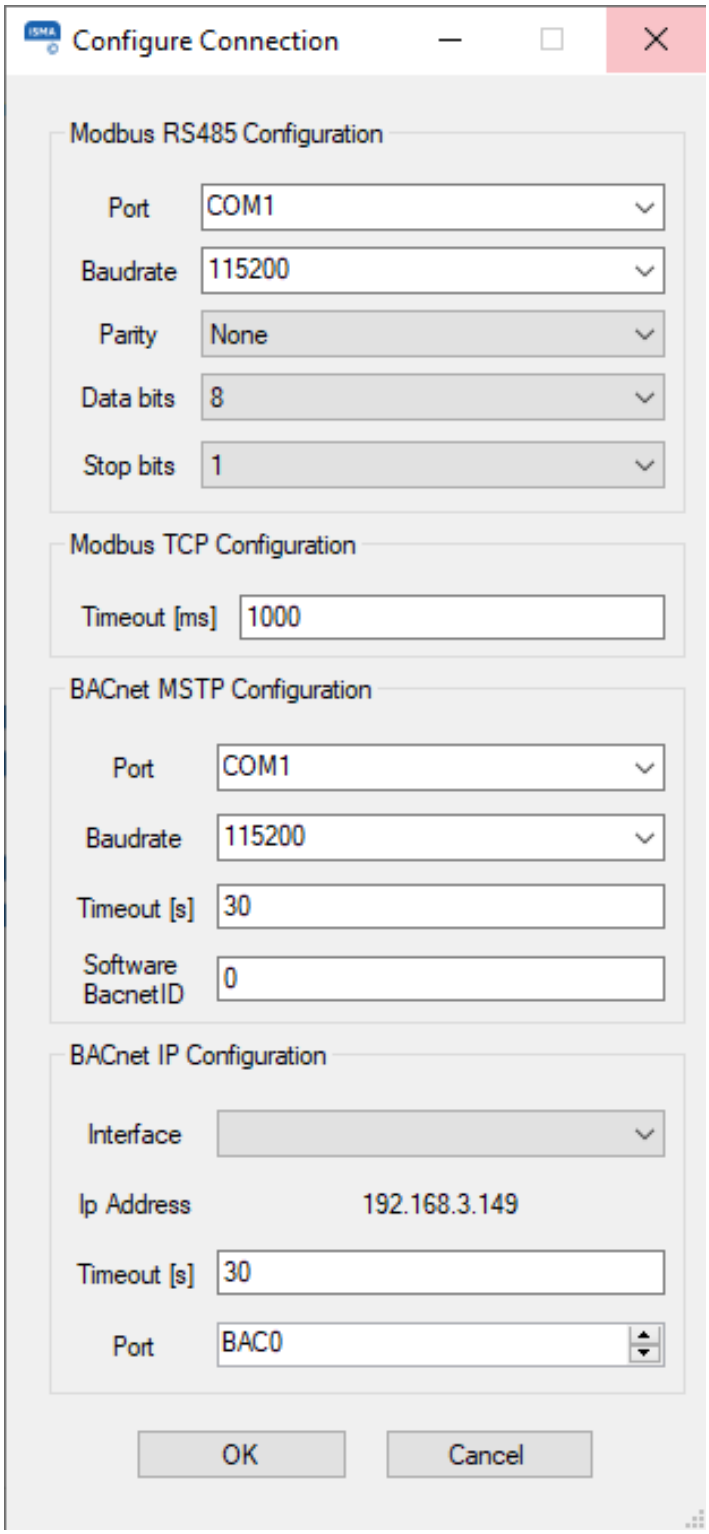


Figure 32. Modbus RS485 configuration parameters

Before beginning the discovery process, it is necessary to setup the range of addresses. The iSMA Configurator starts searching for the first device with the address given in the Start Address field until reaching the last device with the address specified in the Stop Address field. The time spent on discovering varies depends on the range of the devices and on the network's baud rate. To reduce the detecting time, it is recommended to adjust the range accordingly.

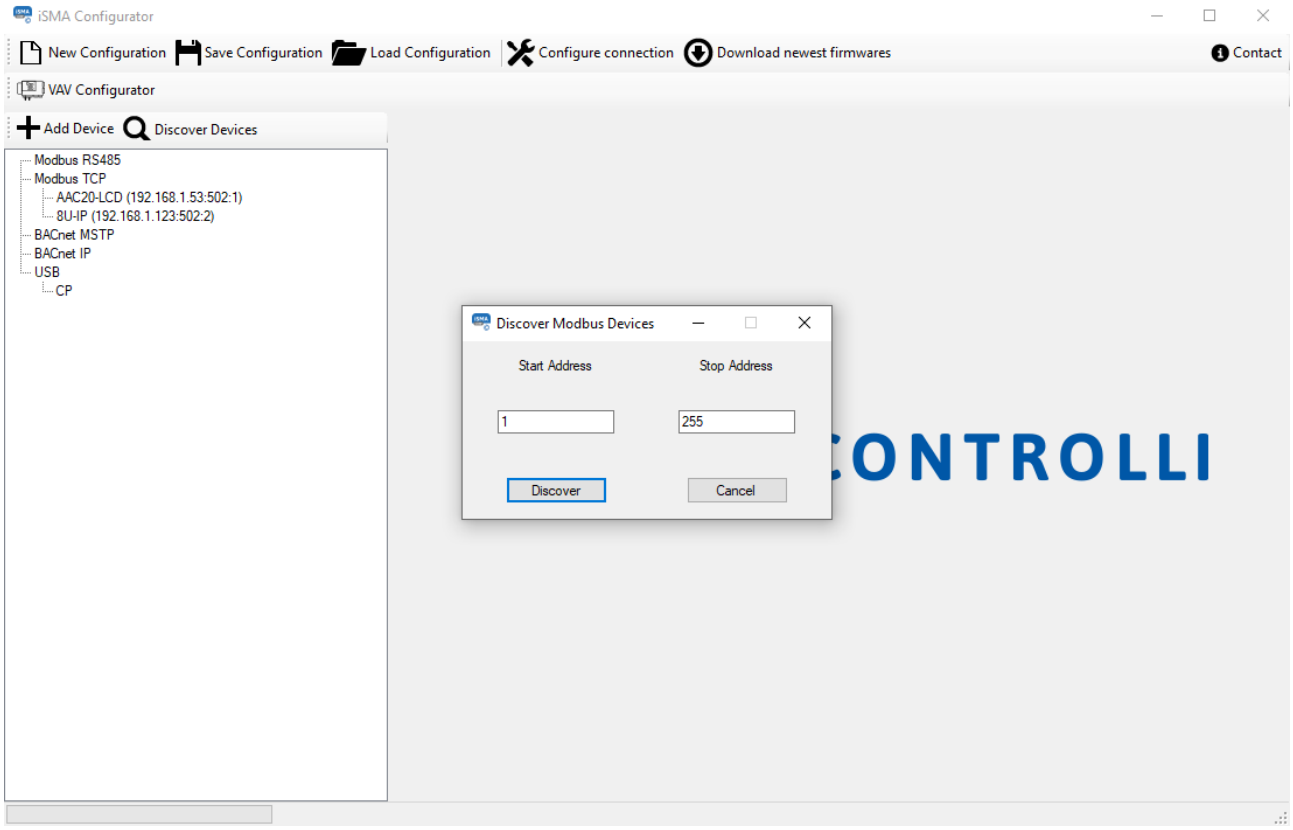


Figure 33. Address range for device detection

After the discovery process is finished, devices appear in the navigation tree, under the RS485 branch. Device types and their Modbus addresses are identified automatically.

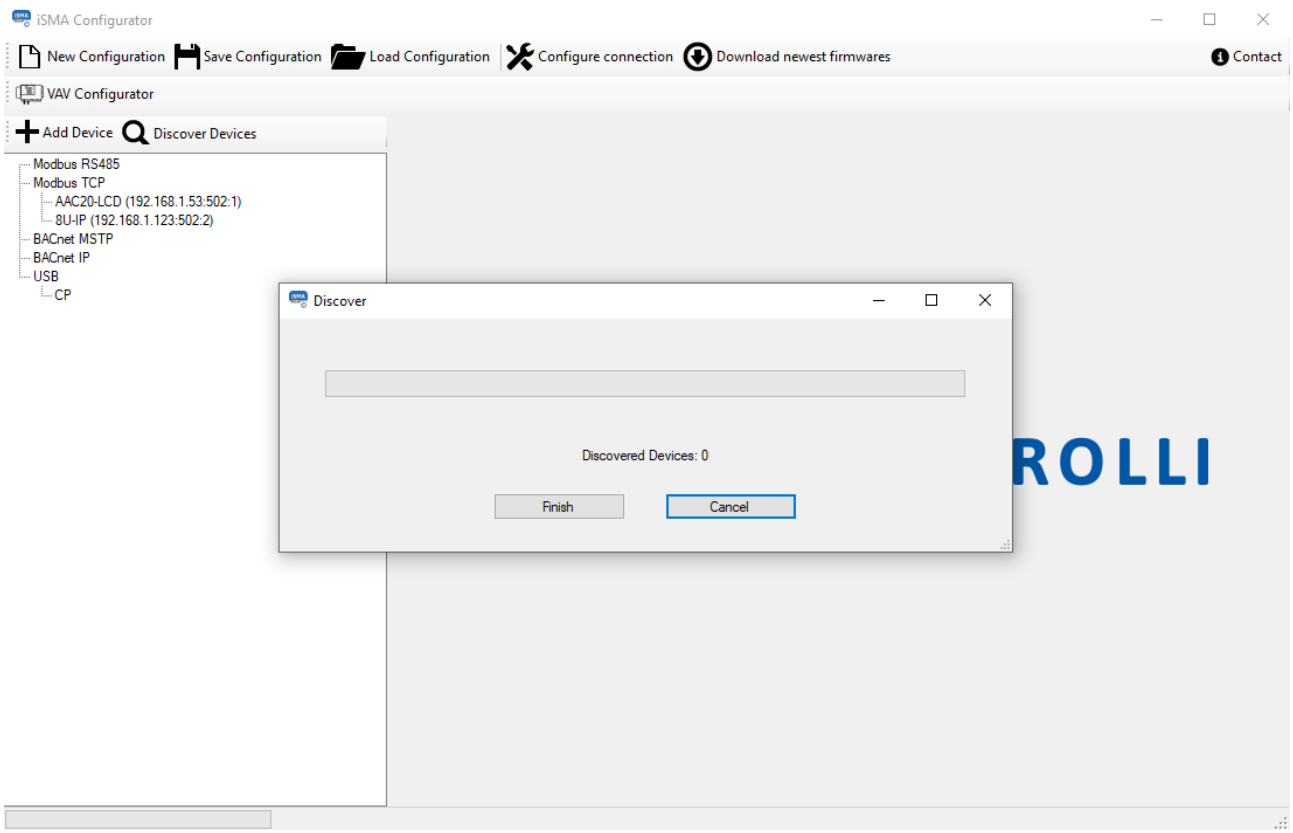


Figure 34. Device discovered via Modbus RS485

10 Adding and Removing Devices Manually

10.1 Adding Devices

Adding a device to the table or removing can be done manually. Both functions (adding and removing) can be done either online or offline, even without starting the transmission. This approach allows the user to edit the list of devices on any project before arriving on the site.

The function of discovering devices along with adding and removing option helps the user to build a virtual list of all physical devices installed on the Modbus or BACnet network.

Note: It is recommended to do the discovery process first, because starting discovery erases the list of previously added devices.

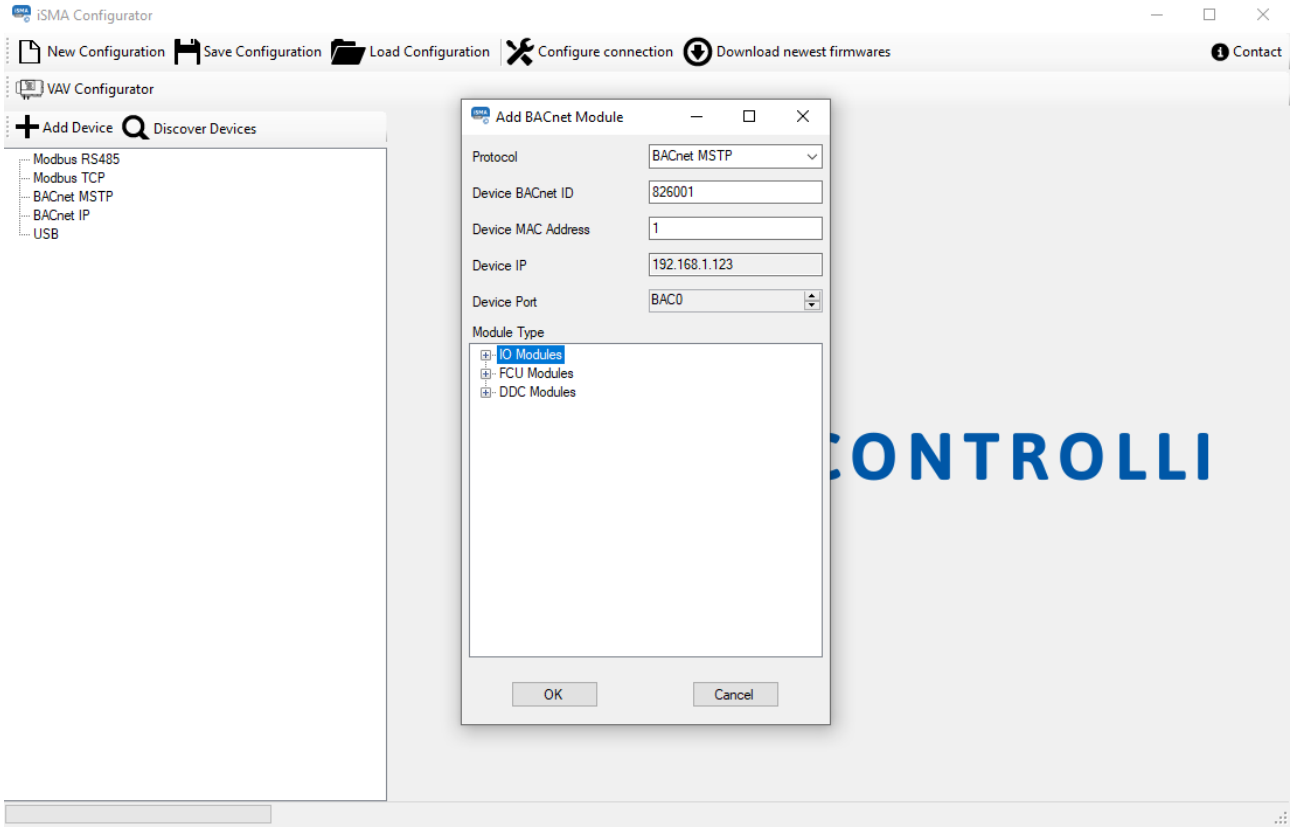


Figure 35. Adding devices

The process of adding a new device varies depending on the type of connection chosen for the project. Both protocol types ask for unique device identification on the bus. In case of Modbus, the Modbus address (MAC address field) is required, but in case of BACnet, the BACnet ID is needed. To simplify the process, the system automatically calculates and proposes a BACnet ID basing on the MAC Address typed, assuming that BACnet net is built with default 82600 subnet (provided by the BACnet organization to all iSMA CONTROLLI devices).

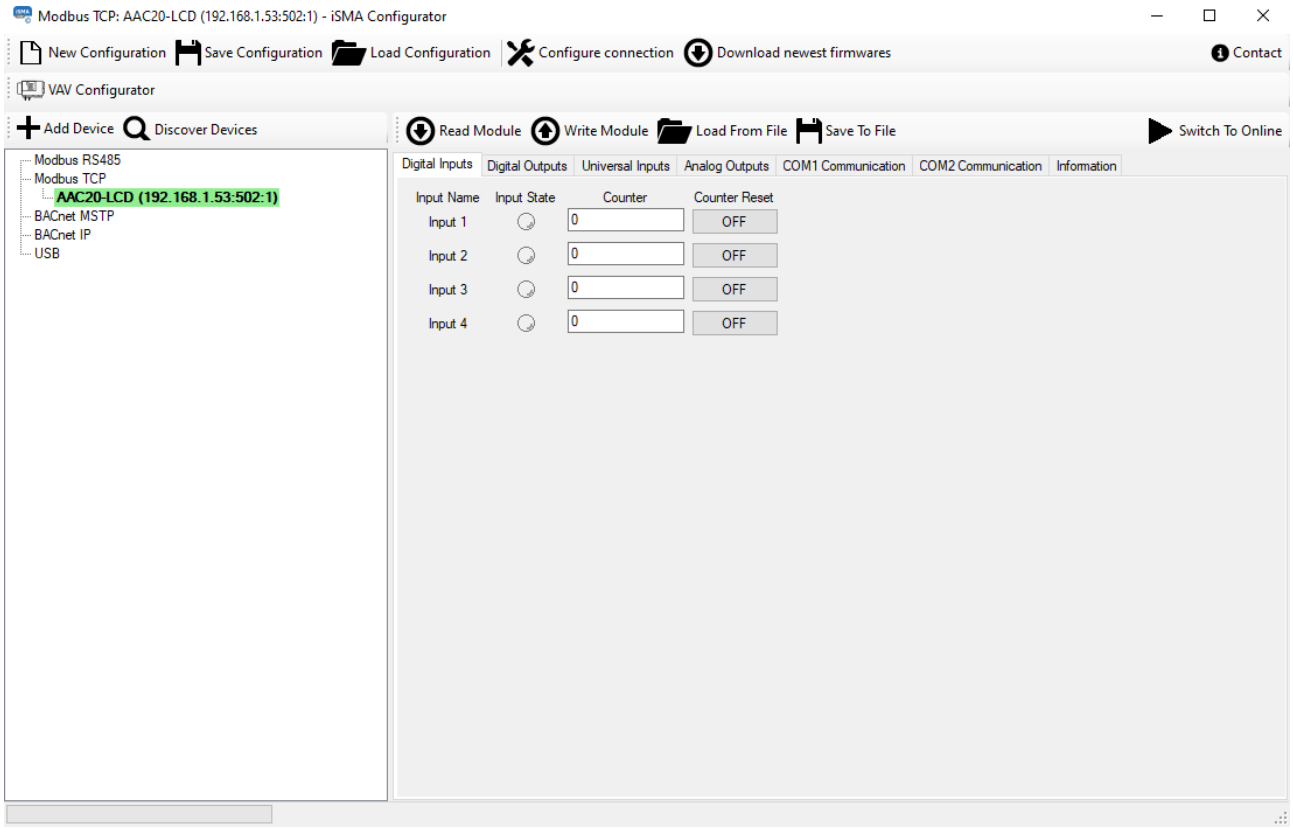


Figure 36. Adding Modbus device manually

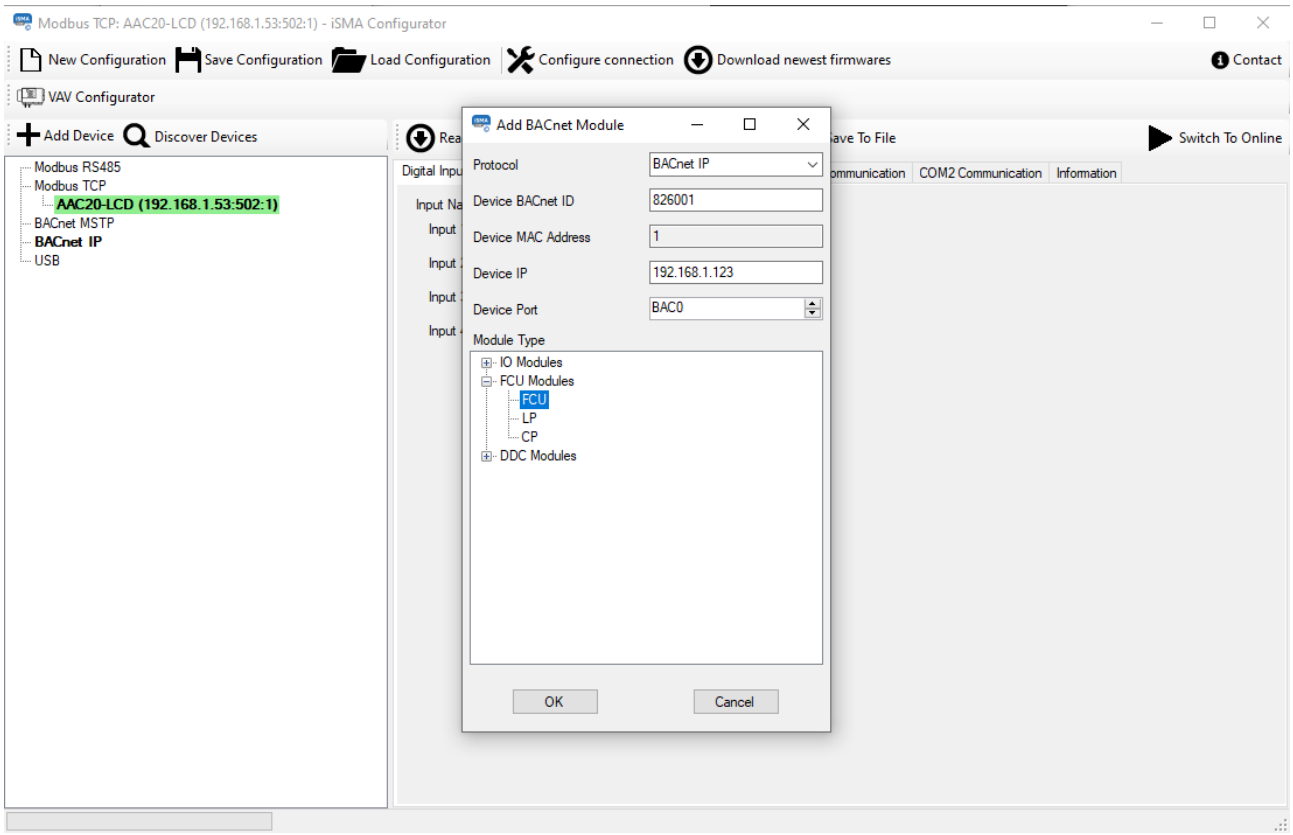


Figure 37. Adding BACnet device manually

10.2 Removing Devices

To remove the devices from the project, right click on the device and choose the Delete option from the list.

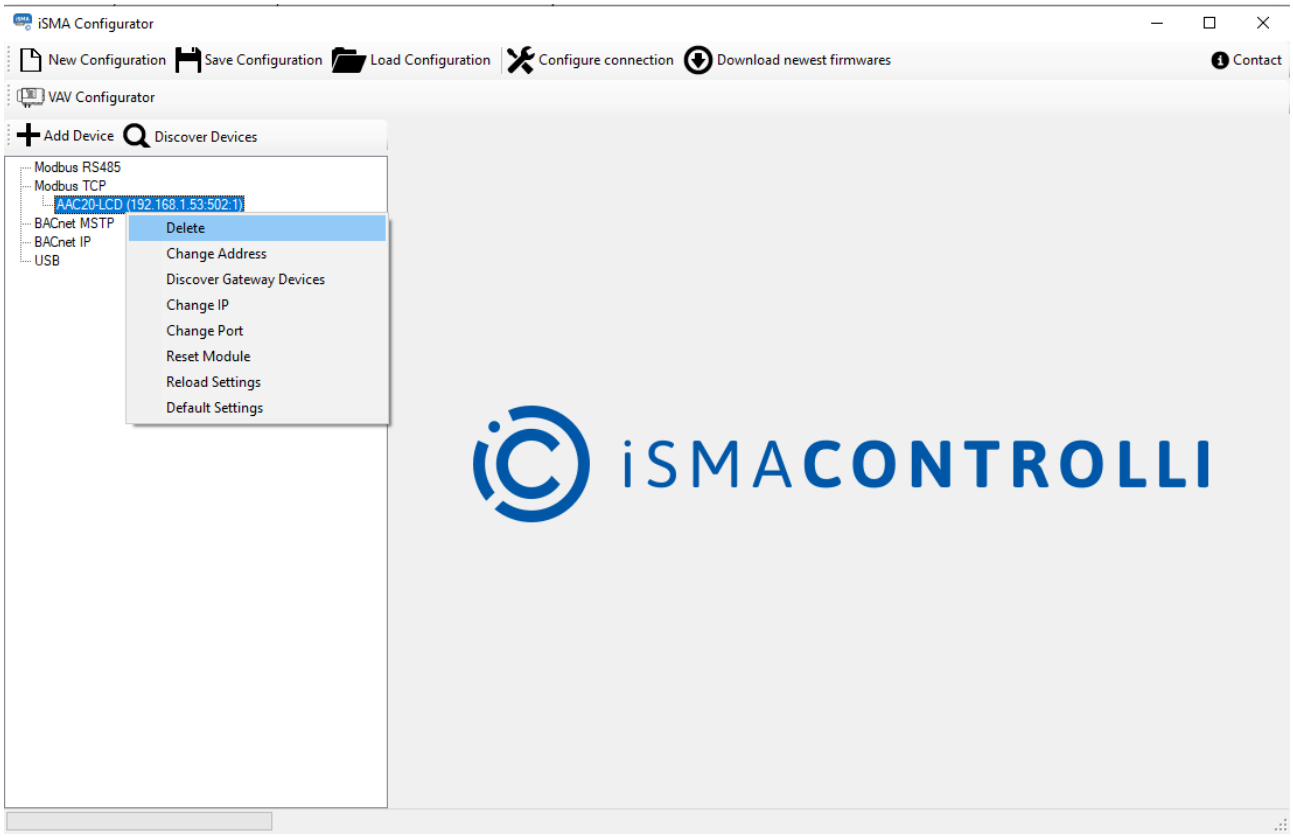


Figure 38. Removing devices manually

It is possible to add the device to the list automatically (to extend the list of devices) as soon as the physical unit is connected to the iSMA Configurator directly with the cable. This feature is convenient if there is a controller that is not attached to the bus yet, but the user can easily connect the USB cable to it. The next chapter describes this process in more detail.

11 VAV Configurator

The VAV Configuration is a tool especially designed to work with the VAV14-IP controller. It allows to configure the parameters of the VAV14-IP controller in three areas:

- VAV application,
- airflow settings,
- balancing.

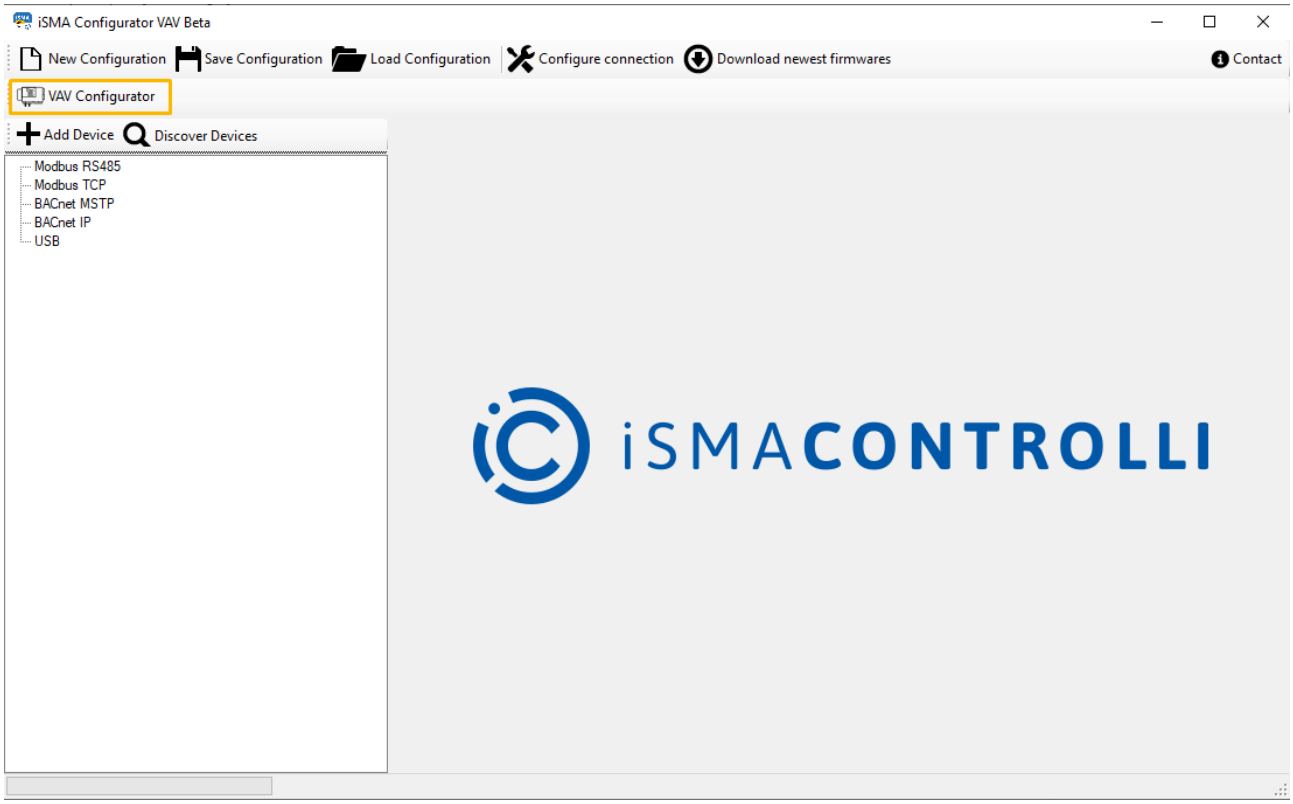


Figure 39. VAV Configurator button

11.1 Opening the VAV Configurator

The VAV Configurator is accessible under a dedicated button.

Before opening the VAV Configurator, it is required to start a BACnet IP transmission. Normally, a start-transmission prompt will be displayed automatically after pressing the VAV Configurator button:

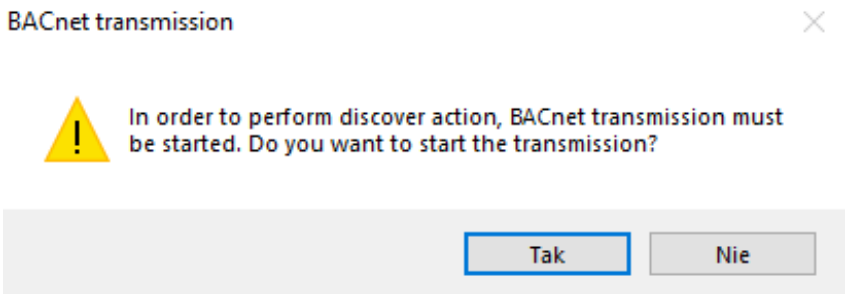


Figure 40. BACnet transmission prompt

Confirm the pop-up window and the BACnet IP transmission will be started automatically.

Note

In case there are any problems with an automatic start of the BACnet IP transmission, start it manually. Find out more here.
If BACnet IP communication is not started, the VAV Configurator button is not active.

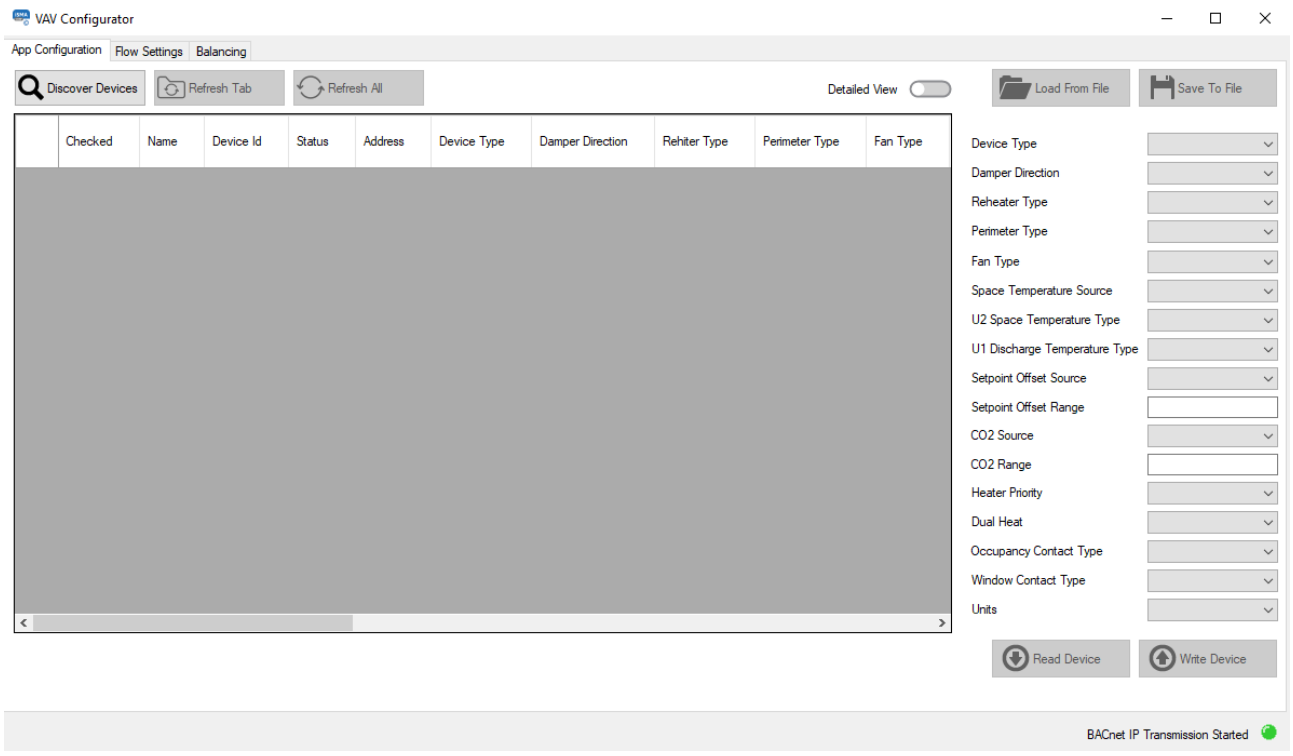


Figure 41. VAV Configurator started

11.2 Discovering Devices

The next required step is discovering devices. Use a dedicated button in the left top corner of the VAV Configurator window:

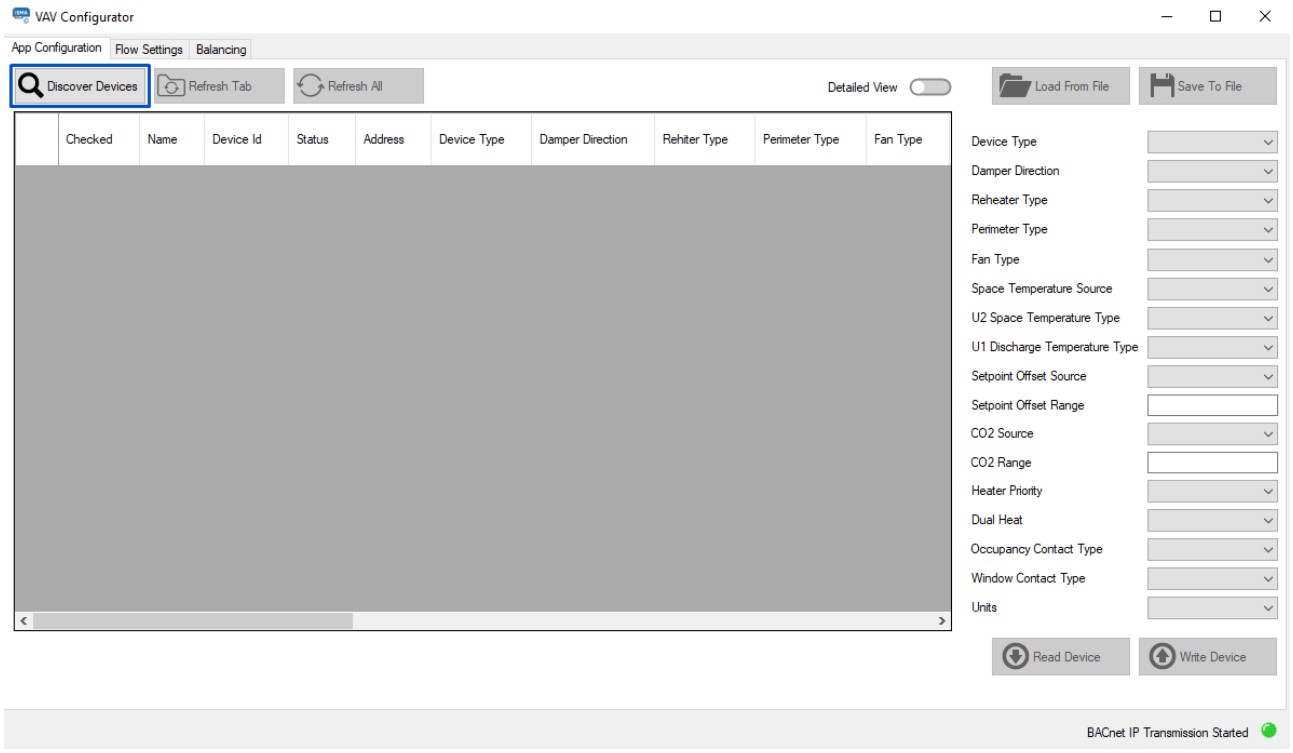


Figure 42. Discover Devices button

Warning!

For the discovering process to be successful, make sure that the subnet mask of the PC is compliant with the subnet mask of the device to be discovered. Network parameters of the controller can be checked and/or changed in the Ethernet component (System container).

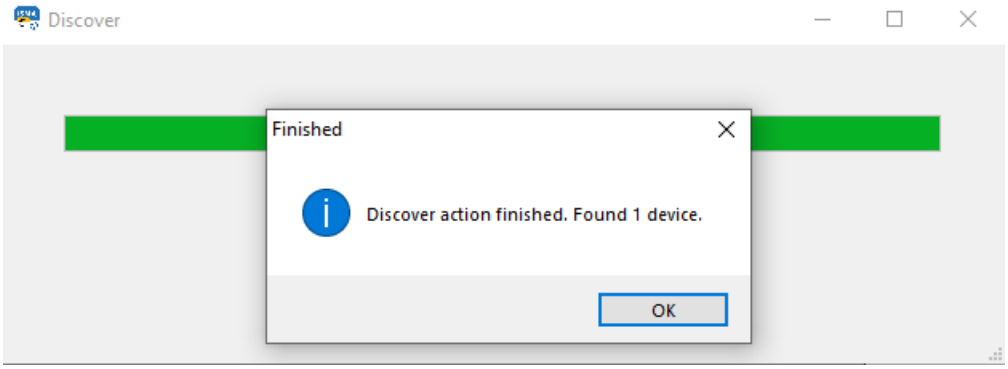


Figure 43. Finished discovering process

11.3 App Configuration

The first tab of the VAV Configurator is the App Configuration tab. Here, it is possible to execute four basic actions and configure VAV application parameters.

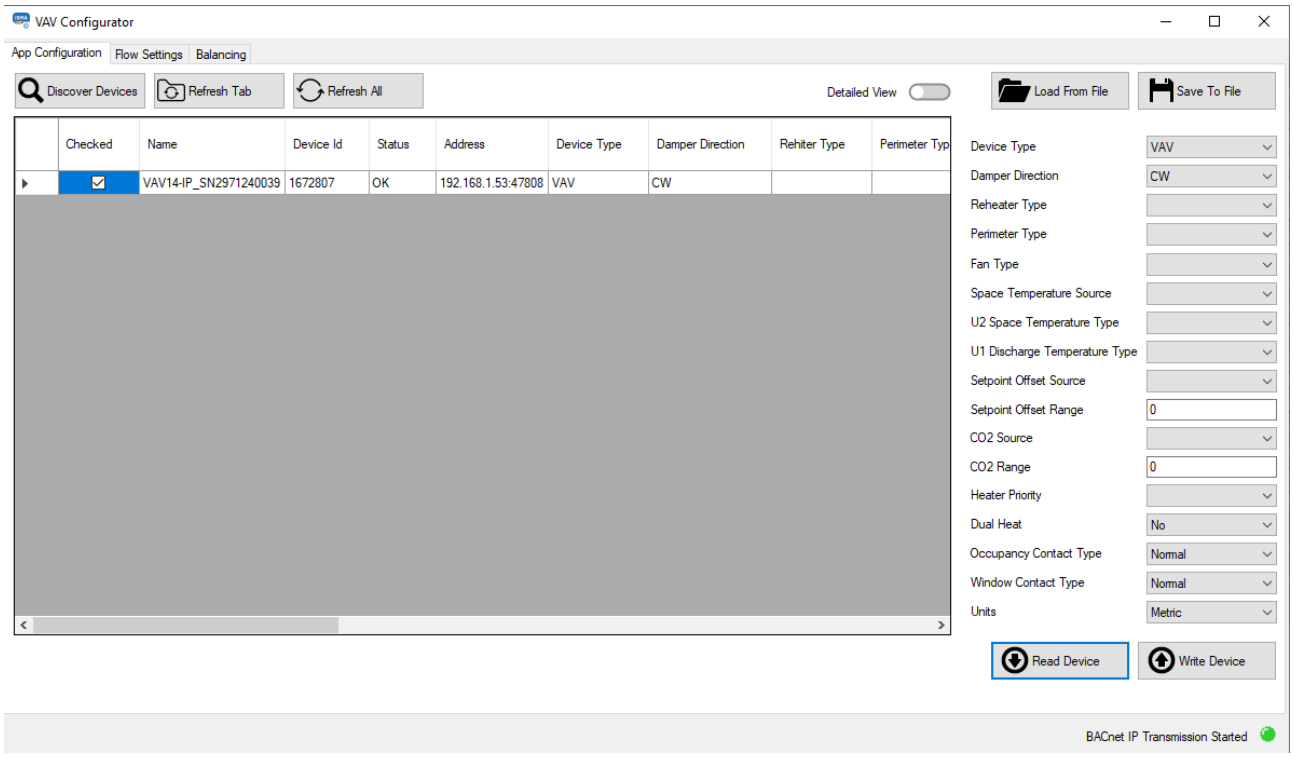


Figure 44. App Configuration view

The four available actions are:

- **Load From File:** allows to upload application parameters from a previously saved file (*.json);
- **Save To File:** allows to save current application settings to a .json file;
- **Read Device:** reads current application settings directly from the device;
- **Write Device:** sends new settings to the device.

For more information on parameters of the VAV application that are available to configure in the iSMA Configurator, please see the VAV Software user manual.

11.4 Flow Settings

The second tab of the VAV Configurator is the Flow Settings tab. Here, it is possible to execute four basic actions and set flow parameters for the use of VAV application.

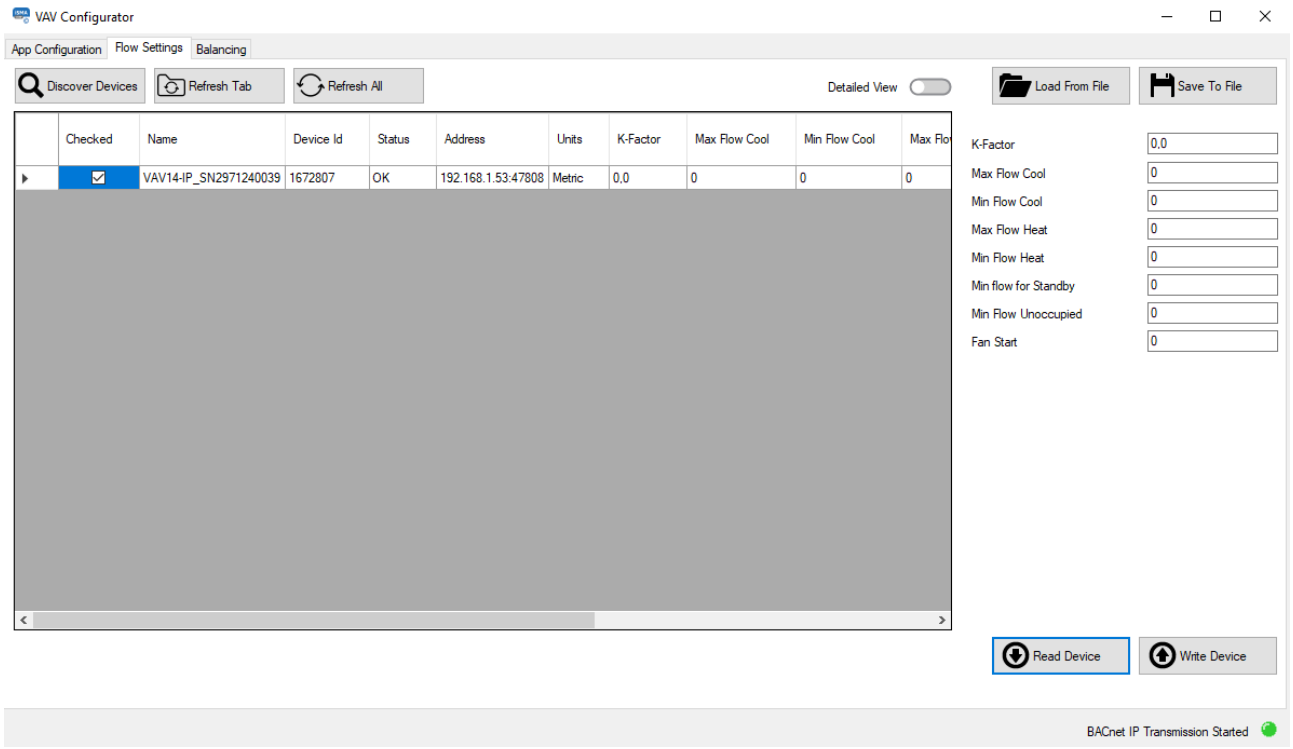


Figure 45. Flow Settings view

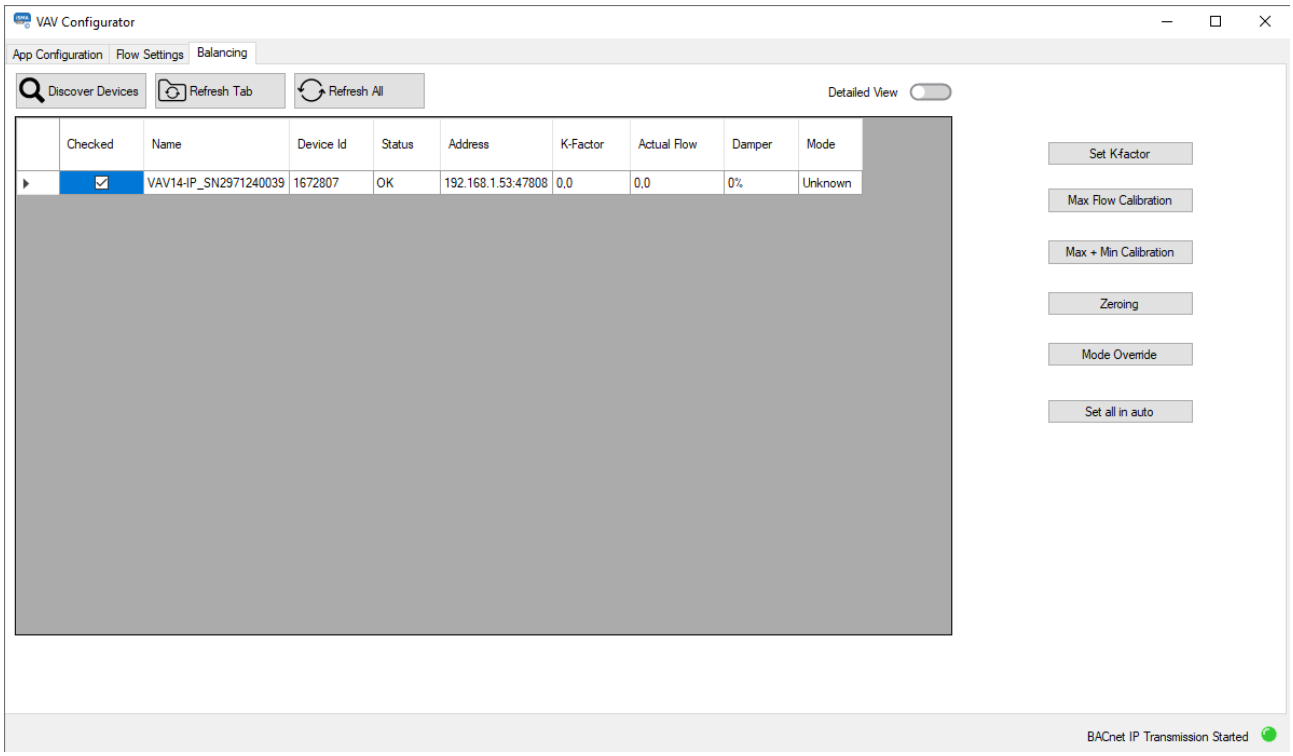
The four available actions are:

- **Load From File:** allows to upload airflow parameters from a previously saved file (*.json);
- **Save To File:** allows to save current airflow settings to a .json file;
- **Read Device:** reads current airflow settings directly from the device;
- **Write Device:** sends new settings to the device.

For more information on the airflow settings parameters that are available to configure in the iSMA Configurator, please see the VAV Software user manual.

11.5 Balancing

Balancing actions in the iSMA Configurator are available in the last tab of the VAV Configurator, the Balancing tab. Here, it is possible to perform actions of the balancing process.



The available actions are:

- **Set K-Factor:** sets the K-factor value to the airflow calculations (AV61, 40289);
- **Max Flow Calibration:** executes a calibration action according to a new maximum airflow value (AV66, 40294);
- **Max + Min Calibration:** executes a calibration action according to a new maximum and minimum airflow values (AV66, 40294);
- **Zeroing:** performs the pressure sensor zeroing action (BV13, 00014);
- **Mode Override:** allows to force the device to operate in one of the available modes (MSV7, 40068):
  - Available settings: Auto, Max. Flow, Min. Flow, User Flow, User Position, Full Open, Full Close, Calibrate;
- **Set all In auto:** forces all dampers to the Auto mode (MSV7, 40068).

For more information on the VAV balancing parameters that are available to configure in the iSMA Configurator, please see the VAV Software user manual.