



# CoolMaster EDGE

## User Manual

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Version 1.0

Nov 2025

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# 1. Introduction

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This User Manual provides the information necessary for installers and integrators, to effectively use the CoolMaster EDGE for connecting VRF and other HVAC systems with a BMS or with cloud Applications.

The CoolMaster EDGE provides data exchange between the connected HVAC systems and the CoolAutomation cloud solution.

Each CoolMaster EDGE device supports up to 64 Indoor units across multiple VRF system brands and models.

It can also connect to BACnet devices over BACnet MSTP (RS485) or BACnet IP. Up to 64 BACnet devices can be connected.

Exact number of connected VRF systems is brand dependent.

## 1.1 Conventions

This document provides screen prints and corresponding narrative to describe how to use the CoolMaster EDGE.

When an action is required on the part of the reader, it is indicated by a line beginning with the word "Action:" For example:

**Action:** Click on OK.

Fields or buttons to be acted upon are indicated in bold italics in the Action statement; links to be acted upon are indicated as links in underlined blue text in the Action statement.

**Note:** The term 'user' is used throughout this document to refer to a person who requires and/or has acquired access to the CoolMaster EDGE.

## 1.2 Revisions History

Version Number	Date	Author/Owner	Description of Change
0.1	10/5/2025	CA	<i>CoolMaster EDGE</i> manual
0.5	29/10/2025	CA	

Table 1 - Record of Changes to document

## 1.3 Acronyms and Abbreviations

Acronym	Literal Translation
BBMD	BACnet Broadcast Management Devices
BMS	Building Management System
DTE	Data Terminal Equipment
GPIO	General Purpose Input / Output
HVAC	Heating Ventilation and Air Conditioning
N.C.	Not Connected

*Table 2 – Acronyms and Abbreviations*

## 2. Overview

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The CoolMaster EDGE enables integration of VRF systems with BMS (Building Management System) controllers, Cloud solution and Home Automation controllers.

Each CoolMaster EDGE device supports up to 64 Indoor units across multiple VRF system brands and models. The exact number of connected systems is brand dependent.

CoolMaster EDGE capabilities and interfaces includes:

- RS485 BACnet MSTP or Modbus RTU (according to the EIA/TIA-485 standard),
- Ethernet (ASCII, Modbus IP, REST, BACnet IP) for control and monitoring of the HVAC system
- Remote access via smart phone, tablet or PC using the CoolAutomation cloud-based Control application or Locally over the local network directly to device.
- Available Control functionalities for each connected VRF system:
  - ON/OFF
  - Setpoint
  - Operating mode
  - Error status (read only)
  - Room temperature (read only)
  - Louver
  - Fan Speed
  - More data points are available through Modbus /BACnet tables or the advanced CoolAutomation application

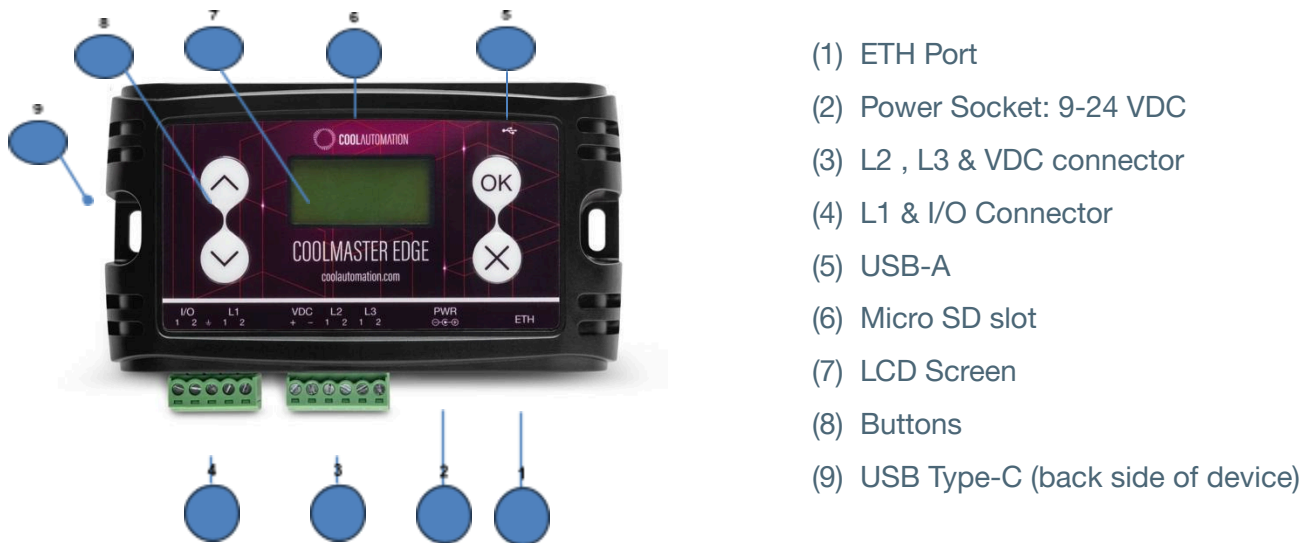
What's in the box:

1. CoolMaster EDGE device
2. AC Power adaptor to 12VDC
3. RJ45 Ethernet cable
4. USB-C to USB-C cable
5. USB-C to USB-A adapter
6. 2 termination resistors

### 3. Device Layout and Connectivity

The following sub-sections provide details on the connectivity options of the device and how to use the various functions of the CoolMaster EDGE.

#### 3.1 Device Layout and Connectivity



- (1) ETH Port
- (2) Power Socket: 9-24 VDC
- (3) L2 , L3 & VDC connector
- (4) L1 & I/O Connector
- (5) USB-A
- (6) Micro SD slot
- (7) LCD Screen
- (8) Buttons
- (9) USB Type-C (back side of device)

Figure 1 – EDGE Device Layout

##### 3.1.1 Ethernet Port

The CoolMaster EDGE incorporates an IEEE 802.3 compatible 10/100 Mb/s Ethernet port via an RJ45 connector. Below are the main port specifications:

Parameter	Value	Notes
Max Ethernet cable length	137m / 450ft	CAT5 twisted pair cable
Bit Rate	10/100 Mb/s	
Supported Ethernet Protocols	10BASE-T/100BASE-TX	
Protocol Auto-Negotiation	Enabled	Against Link Partner

Table 1 - Ethernet port specifications

The RJ45 connector includes Link and Activity indication LEDs used as specified below:

LED	Color	Function
Link LED (left)	Green	ON - good link OFF - no link
Activity LED (right)	Orange	Blinks when Tx/Rx activity detected

Table 2 - Ethernet link & activity indication LEDs

The Ethernet interface is used by several protocols available in the CoolMaster EDGE:

- Connection to Cloud based applications.
- BACnet IP
- Local Control Application (local Web Server)
- REST API, SSDP
- ASCII I/F

Note: Network settings of the CoolMaster EDGE are controlled using the ifconfig command.

### 3.1.2 Power Terminal

The CoolMaster EDGE can be powered by one of the following methods:

- AC/DC adapter (included in the box) connected to the Power terminal
- 9-24V DC from HVAC, hardwired power supply, or other equipment via VDC+ and VDC- terminals
- USB-C port

### 3.1.3 L2 , L3 & VDC connector

Pin Number	Pin Name	Function
1	VDC+	+ VDC – Power, positive Input/Output
2	VDC-	- VDC – Power, negative Input/Output
3	L2 1	HVAC Line 2 terminal 1 / L2 RS-485 A
4	L2 2	HVAC Line 2 terminal 2 / L2 RS-485 B
5	L3 1	HVAC Line 3 terminal 1 / L3 RS-485 A
6	L3 2	HVAC Line 3 terminal 1 / L2 RS-485 B

Table 3 – L2 , L3 & VDC connector

### 3.1.4 L1 & I/O Connector

Pin Number	Pin Name	Function
1	I/O port 1	Digital Input 0-5V – All On/Off function
2	I/O port 2	Digital Input 0-5V - All On/Off function
3	GND	GND
4	L1 1	HVAC Line 1 terminal 1 / L1 RS-485 A
5	L1 2	HVAC Line 1 terminal 2 / L1 RS-485 B

Table 4 – L1 & I/O Connector

### 3.1.5 USB A Terminal

Used to connect the CoolMaster EDGE to external USB peripherals with multiple service options.

### 3.1.6 Micro SD card slot

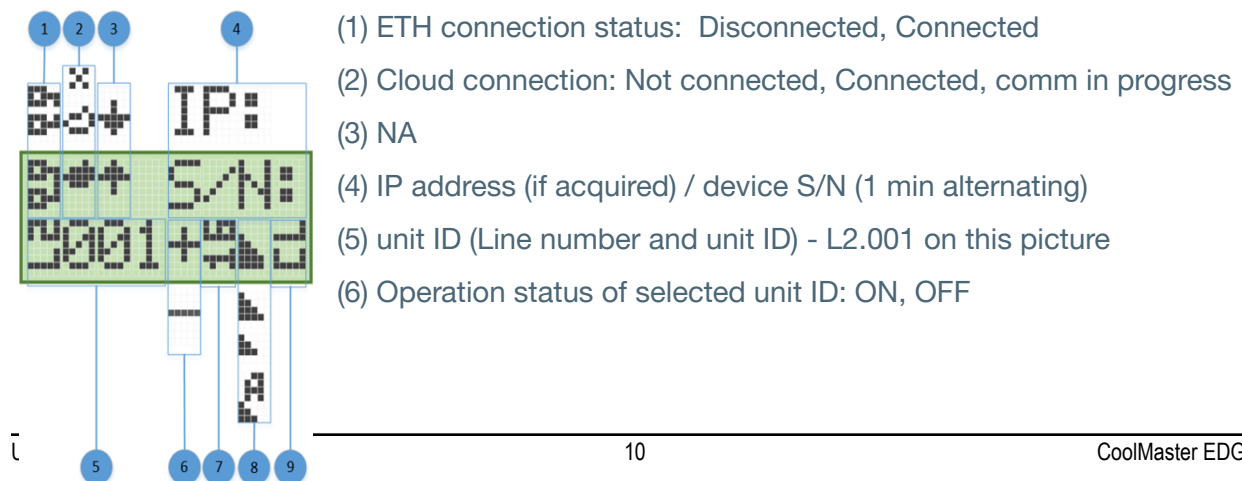
Used to insert a Micro SD card to allow local storage for buffering data in transfer.

A Micro SD card, 8Gb is included in the package and factory installed in the device.

**Important Note:** the SD card requires special formatting to work with the device. The included card is already formatted and ready to use. Using a different card is not recommended and may cause unexpected behavior.

### 3.1.7 LCD Screen

The CoolMaster EDGE is equipped with an alphanumeric 8x2 characters LCD that presents important device parametric and status information.



(7) Set Point temperature for selected unit ID

(8) Fan speed for selected unit ID: High, Medium, Low, Auto

(9) Operation mode of selected unit – CL - Cool, HT - Heat, FA - Fan, DR - Dry, AU – Auto

### **3.1.8 Navigation Buttons for LCD Control**

Buttons for navigating through the different menu items on the LCD screen.

Clicking the up/down buttons will stop the automatic line data information scroll and will allow user to navigate unit by unit by clicking up/down arrows.

Clicking the X will go back to the auto scrolling mode

### **3.1.9 USB–C Terminal (back of device)**

Used to connect the CoolMaster EDGE to the PC USB Host for firmware updates and maintenance operations using the CoolAutomation installation Toolbox (Windows based software).

## 4. Installation Guidelines

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The CoolMaster EDGE allows multiple connections simultaneously.

It is important to properly plan in advance your setup to optimize the different line combination that best fits your HVAC installation.

**Lines L1 and L3** are standard RS485 lines and can be used for either of the following:

- HVAC IDU-ODU Communication line or ODU-ODU communication line (specific HVAC brands)
- BACnet MSTP Client
- Modbus RTU Master

**Line L2** can serve all options as in lines L1 & L3 above, with the following additional options:

- HVAC CAN bus interface for connecting Gree VRF systems
- HVAC Home Bus System (specific HVAC brands such as Daikin, Mitsubishi Electric, Toshiba, Hitachi)
- 

The Ethernet terminal allows communication with the cloud as well as integration with Modbus TCP and BACnet IP.

If the IP network does not support DHCP, connect a PC to the local USB Host port and use the configuration Toolbox SW to set it manually.

Before connecting to any of the lines, make sure to [configure the line properties](#). Follow [EDGE installation guide](#) for specific VRF brand guidance.

### 4.1 Starting CoolMaster EDGE

- **Connect the device to power** through one of the options indicated in [power section above](#).
- Use Ethernet cable to **connect the device to the network**. Once connected, the device automatically looks for a DHCP server to get a local IP address and connect to the network.
  - If an IP address cannot be acquired with DHCP, use the [setup utility](#) to properly set the advanced network settings.
  - **Note:** Specific ports must be opened on the firewall to access the ethernet. Without allowing access on these ports, cloud access and remote troubleshooting will not be available. Port guidelines can be found in the [support article](#).
- Set CoolMaster EDGE lines according to your needs:
  - HVAC lines – see [EDGE installation guide](#) for brand specific wiring and configuration
  - RS485 BACnet MSTP/ Modbus RTU – baud rate, intervals, id, more. Use [config app](#)
- Disconnect Power from the CoolMaster EDGE device
- Connect the lines to the related systems

- Connect the device to Power
- The device starts up and auto discovers the connected HVAC systems and other controllers connected to it.
- Once connected you can start integrating with your preferred automation system or BMS over the related interface/protocol and start controlling and monitoring the HVAC system.



## 5. Device Configuration

Device configuration can be done either using the [local browser based configuration](#) or by connecting to the USB-C terminal (cable included) using the [Setup Utility](#).

### 5.1 Browser access to device on local network

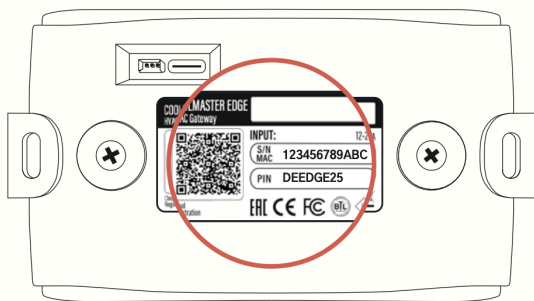
The EDGE device runs a local web server that can be accessed from authorized devices through browser HTTP.

Accessing the **local Config App** from a browser on the local network:

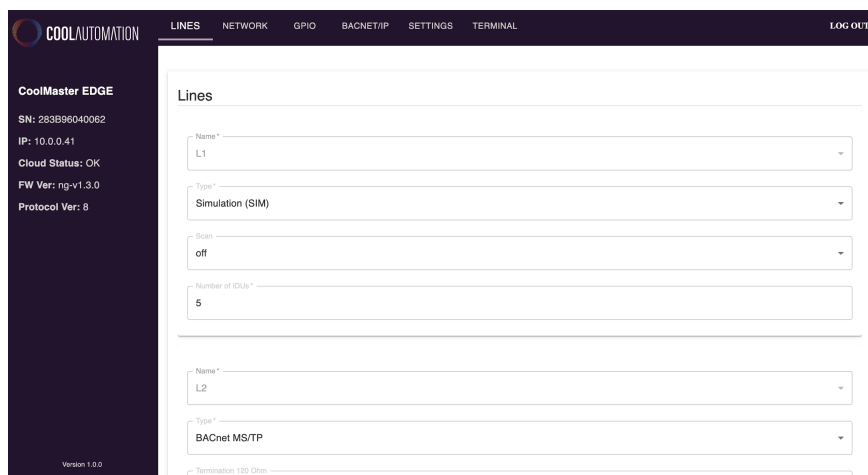
**URL:** http://<Device acquired IP address>/config (e.g. http://192.168.2.24/config)

**Default user credentials:** User: admin , Password: PIN

S/N and PIN can be found on the back label of the device.



When logging into the device user get to the main config screen:



Following settings allow admin to set each of the interfaces and device configurations.

## 5.1.1 Lines

Set line configuration as required for the systems that are connected on each specific line.

Following line properties are available:

- **Name** – the name of this line as indicated on the devices labels - L1, L2, L3, L8 (USB), L9 (USB-C)
- **Type** – The type of the line. Once type is selected, all type related parameters are shown (different parameters are available for the different line types).

Following types are available to select:

- o BACnet MSTP – set line to RS485 with BACnet MSTP.
  - Baud Rate – communication rate on the line: 9600 or 38400
  - Polarity – define if it is Normal (A/B) or inversed (B/A)
  - Vendor ID –1164 (read only) – CoolAutomation’s BACnet vendor ID assigned by ASHRA . Used in the Vendor ID property.
  - Model Name – CoolMasterEDGE (read only). The BACnet model name property.
  - Device ID - The BACnet Device ID (instance number) property. Can be configured following BACnet standard guidelines. Default is 123.
  - MSTP MAC – the address of the CoolMaster EDGE device on the MSTP network.
- o Modbus RTU - set line to RS485 with Modbus RTU.
  - Power Meter Model – select from the list the power meter that you are connecting with. Only pre-integrated power meters can be selected.
  - Baud Rate – communication rate on the line: 9600, 19200, 38400, 57600,115200
  - Polarity – define if it is Normal (A/B) or inversed (B/A)
- o Midea V5 (MDV5) - set line to RS485 connecting to Midea VRF V5 Series
- o Midea V8 (MDV8) - set line to RS485 connecting to Midea VRF V8 Series
- o Samsung - set line to RS485 connecting to Samsung VRF . Advanced configurations:
  - Master – when another central controller is connected on the same line, the EDGE device should be set to “Off”. otherwise “On”
  - Polarity – define if it is Normal (A/B) or inversed (B/A)
- o CoolPlug - set line to RS485, for connecting specifically with wired CoolPlug
- o Simulation (SIM) - set line as simulation of controlling a VRF system
  - Number of IDUs - only for Simulation line type. Set the number of Units to simulate on the VRF line.

- o Unused – line is not in use
- o Daikin – (only available on line 2) connect to Daikin D3-Net communication line
  - Termination 120 Ohm
- o Mitsubishi Electric (ME)
  - Termination 120 Ohm
- o Toshiba TCC (TOTCC)
- o Gree (GMV5)

### 5.1.2 Network

- Mode – Static or DHCP
- When **Static** is selected, you must define the IP address, Network mask, Gateway and (optional) DNS servers

### 5.1.3 GPIO

Allows connecting to digital output sources for centrally override controls of the device in some scenarios (e.g. connect with fire doors activation and shut down all ventilations)

Select between All units ON or All units Off and set Normally On/Off State.

### 5.1.4 BACNET/IP

Allow setting the EDGE device as a BACnet IP client to discover 3rd party BACnet devices. Communication will run over the Ethernet IP port specific line.

You can enable or disable EDGE device BACnet IP interface

- o Vendor ID –1164 (read only) – CoolAutomation’s BACnet vendor ID assigned by ASHRA . Used in the Vendor ID property.
- o Device ID - The BACnet Device ID (instance number) property. Can be configured following BACnet standard guidelines. Default is 123
- o Device Network - The BACnet IP network #. Can be configured from 1 to 65,534. Default is 1.
- o BIP Port - The UDP communication port to use for BACnet IP communication.
- o RW Interval
- o WHOIS interval - the frequency that Who-Is discovery messages are automatically broadcasted in milliseconds. Default is 6,000.
- o BBMD Address - The destination IP address to use for BBMD
- o BBMD Port - UDP communication port to use for the BBMD destination address

## 5.1.5 Settings

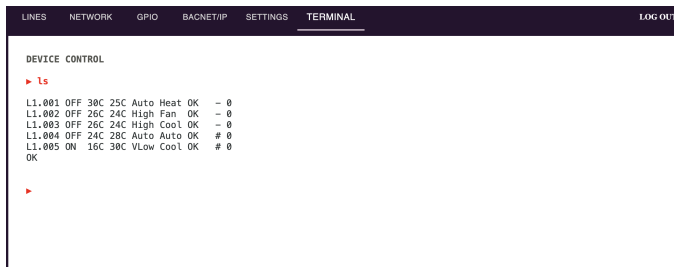
Time Management – In most installations, the device will get its time from the network clock (NTP). In cases where NTP is not available, it is possible to set the time manually.

The time is required to run local schedules and logic based on time.

If the device is connected to the cloud it will take its time from the cloud network.

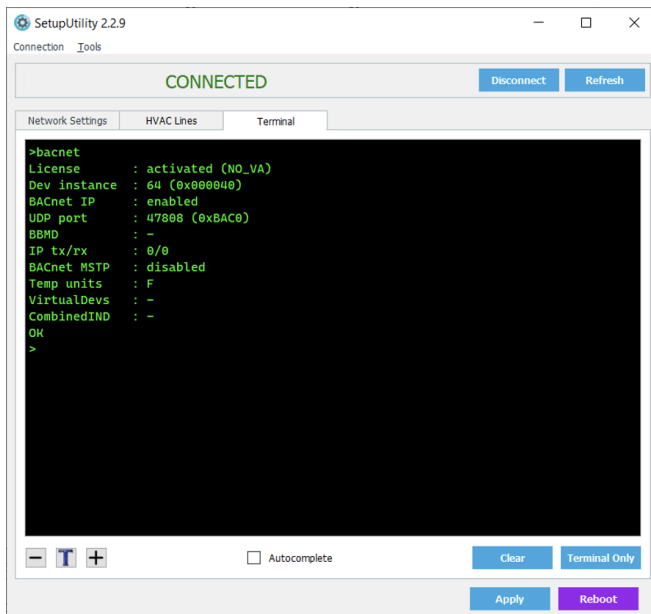
## 5.1.6 Terminal

Opens a terminal console where the user can configure the device using the terminal commands.



```
LINES NETWORK GPIO BACNET/IP SETTINGS TERMINAL LOG OUT
DEVICE CONTROL
> ls
L1.001 OFF 38C 25C Auto Heat OK - 0
L1.002 OFF 26C 24C High Fan OK - 0
L1.003 OFF 26C 24C High Cool OK - 0
L1.004 OFF 24C 28C Auto Auto OK # 0
L1.005 ON 16C 30C VLow Cool OK # 0
OK
>
```

## 5.2 CoolMaster EDGE Setup Utility



## 5.2.1 Network Configuration through Setup Utility

Network configuration is made using the `ifconfig` command as described below.

### SYNOPSIS

```
ifconfig
```

```
ifconfig <PROPERTY> <VALUE>
```

```
ifconfig enable | disable
```

### DESCRIPTION

Query or configure Ethernet network settings. Without parameters, the **ifconfig** command lists the current configuration. To change the configuration, use the format with the parameters **<PROPERTY>** and **<VALUE>**. Parameter **IP** can be set to **DHCP** (DHCP client) or fixed IP number. In case of DHCP - Netmask and Gateway values are provided by the DHCP server. By default, CoolMaster EDGE is configured for DHCP client operation. The CoolMaster EDGE Ethernet module can be enabled or disabled with the corresponding command.

### EXAMPLE

#### 5.2.2 Query network settings

```
>ifconfig
```

```
MAC : 28:3B:96:FF:FF:FE
```

```
Link : Up
```

```
IP : 192.168.1.109 (DHCP)
```

```
Netmask: 255.255.255.0
```

```
Gateway: 192.168.1.1
```

**OK**

### 5.2.3 Configure fixed IP and Gateway

```
>ifconfig IP 192.168.1.102
```

**OK, Boot Required!**

```
>ifconfig Gateway 192.168.1.0
```

**OK, Boot Required!**

### 5.2.4 Configure DHCP client operation

```
>ifconfig IP DHCP
```

**OK**

### 5.2.5 Disable Ethernet

```
>ifconfig disable
```

**OK, Boot Required!**

## 6. Device Functionality

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The EDGE device with its advanced processing and storage, allows unique capabilities when installed in an environment with unstable internet connection.

The following are the main functions available when using the CoolMaster EDGE:

### 6.1 Local Data Buffering

The EDGE device can handle network disconnect periods without losing data on the local network or direct local interfaces.

The mechanism keeps all the collected data on the Micro SD card for the period of network disconnect. Once network connection is back, the data is pulled up to the cloud and synched with the previous data for later retrieval.

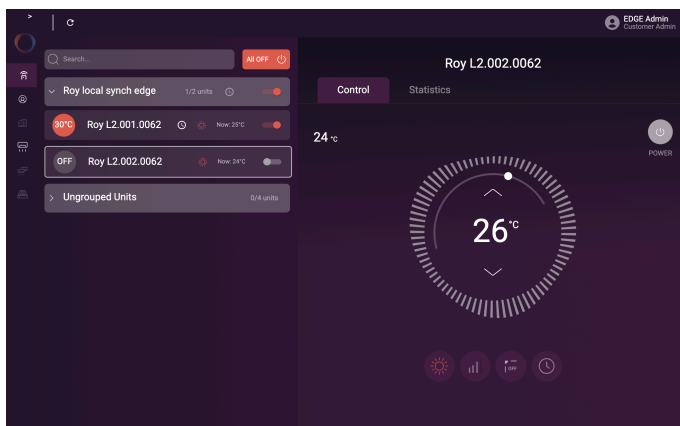
The SD-Card that is included with the box can hold at least 48 hours of data. Depending on the number of connected units, the storage period may be longer.

Backfilling of data to the cloud may take a few hours, and highly correlated with internet stability, network topology, firewalls and the amount of data to be synched.

Note: this capability will only work if Micro SD card is installed and formatted by CoolAutomation specs. By default, the device is shipped from the factory with the SD Card installed and ready to use.

### 6.2 Local Control Application

The EDGE device hosts a web server that allows servicing local browsers directly, even if there is no connection to the Internet. This allows easy control, schedules and basic settings of HVAC units over the LAN, for places without internet access at all, or with unstable networks.



When controlling units from the local applications (Mobile or desktop browser), all activity is being kept and synced to the cloud (if accessible and registered) for later auditing and tracking of system health.

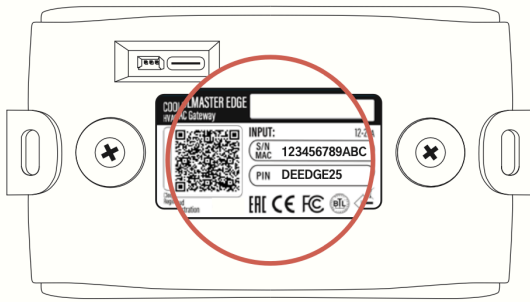
The local application works separate from the cloud-based applications and automatically syncs when there is a cloud connection.

If a control is pushed from the Cloud App and from the local app, the last command received on the device will be executed.

Note: Be aware of potential overrides between cloud and local apps and grant access smartly to avoid conflicts.

## 6.2.1 Logging in to the local Application

- Browser desktop: **http://<device IP address>/control (e.g. http://192.168.1.2/control)**
- Mobile – (future)
- Default **user credentials** are the device SN & PIN, that can be found on the label at the back of the device.



## 6.2.2 Local Control Capabilities

The following control functions are available through the Local app and are synchronized also with the cloud Apps:

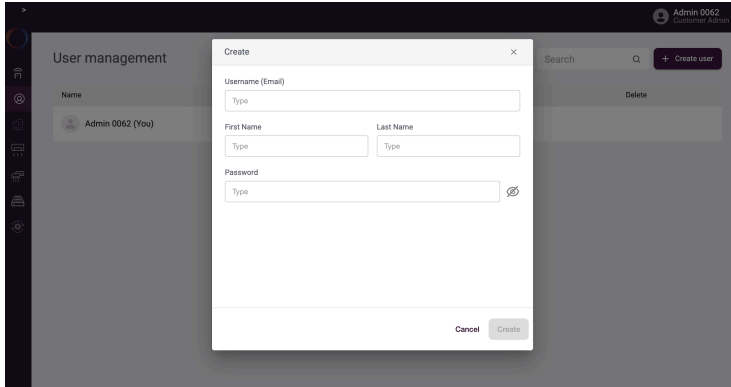
- Control commands – On/Off, Setpoint, Mode, Fan Speed, Louver
- Schedules

## 6.2.3 Local User Management

The default user of the local device is an admin user.

This Admin user cannot be deleted. He can add more local users – all have the same access rights (admin) but can be assigned with different username & password.

On User management tab click “Create User” to add a new user:

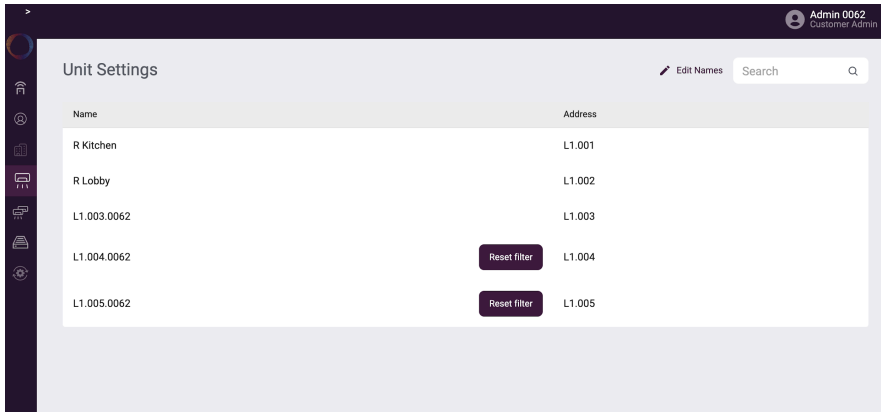


Note: The local users are not synchronized with the Cloud App users.

## 6.2.4 Local Unit Settings

In the Unit Settings tab, users can change the names of units connected on the EDGE device. Click the **Edit Names** button, make changes to unit names and save your changes.

All changes will be synchronized with the cloud app names if the device is registered and connected to the cloud.



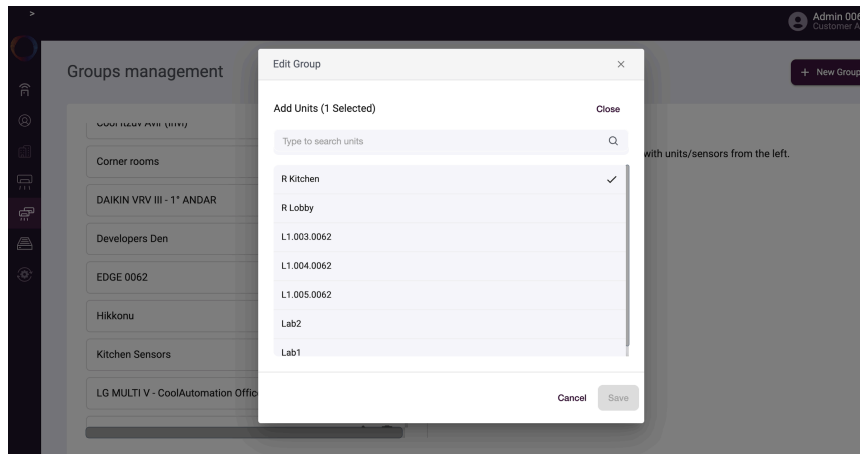
Note: if changes are made on both the cloud app and local app, the last change will be assumed. Avoid conflicts by setting proper access rights to these settings in the cloud and the local app.

## 6.2.5 Local Group Management

In the Group Management tab, users can define new groups, edit groups and change group names.

The local Group Management only relates to groups where all units of the group are on this same EDGE device. If there are groups on the cloud with a mix of units from the EDGE device

and other devices, these groups will not be shown on the EDGE local control, to avoid conflicts in user permissions.



## 6.2.6 Local System Control

Future

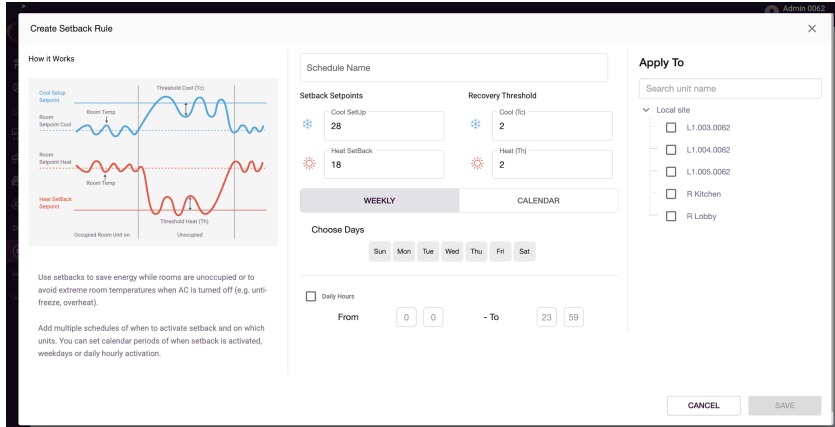
## 6.2.7 Local Advanced Control Settings

In the Advanced Control tab, admin users can manage some advanced control logic through the Local app.

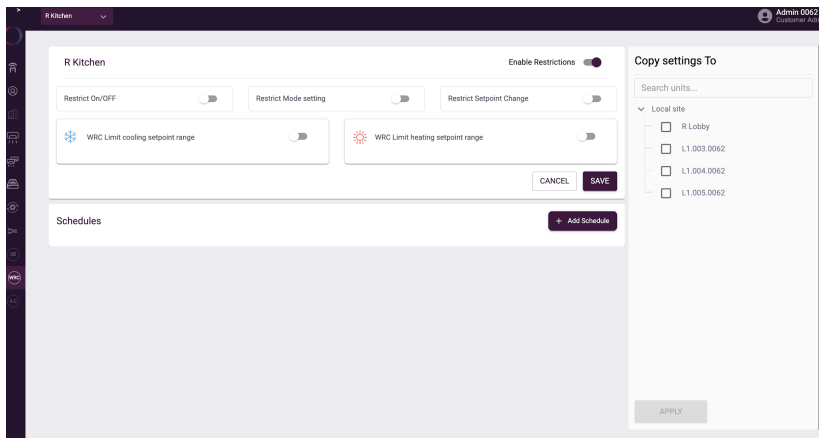
Refer to CoolAutomation Professional app [user guide](#) for a more detailed description of these advanced control settings.

- **Setback** - allows setting setback schedules for energy savings.

Configuration setting of changeover is synced between cloud and local applications when network connection is available



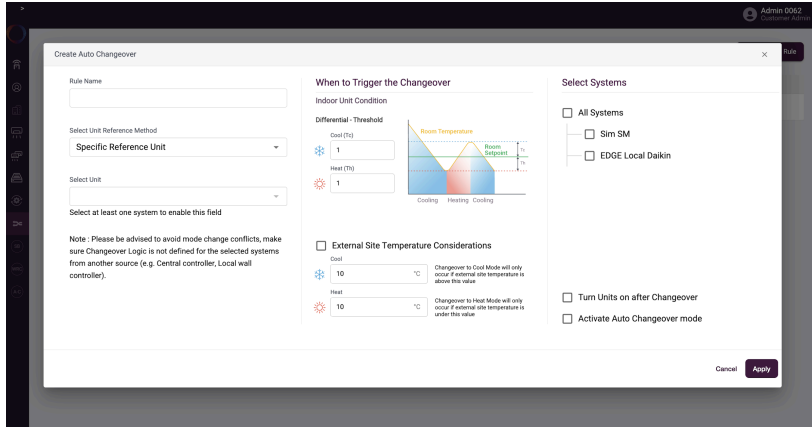
- **WRC restriction** - allow disabling some of the changes done from the local Wall Remote Controller (WRC). The WRC restriction setting doesn't restrict the change of the setting in the Thermostat; however, it enforces the setting by identifying that a change was done via the Thermostat and rolling back the thermostat setting to the state it was prior to the change.



- **Auto Changeover** - allows configuring auto changeover rules for heat pump systems. Settings of systems (grouping units into systems) is made on the cloud site management.

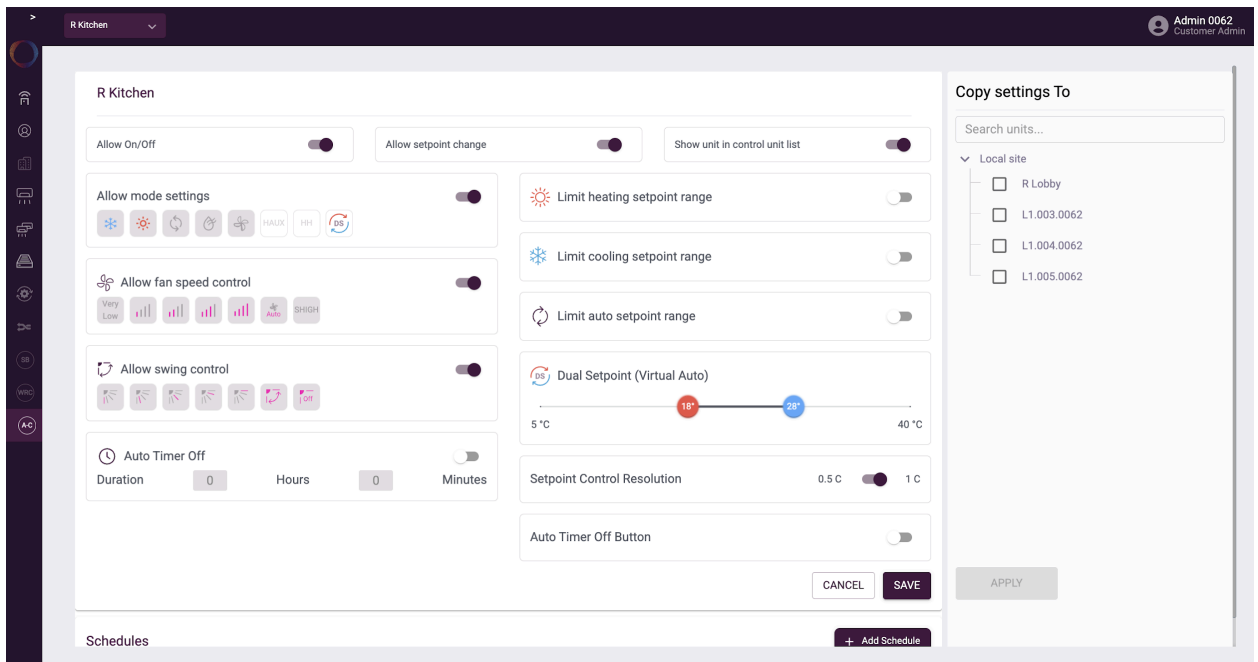
Important note: Setting auto changeover rules assumes the user is aware of the heat pump systems. Setting auto changeover on partial units of a system may result in a fail execution and changeover will not be executed as expected.

Configuration setting of changeover is synched between cloud and local applications when a network connection is available.



- **App Control** – allows configuring which controls will be available through the application (local or/and cloud) for each unit.

Configuration setting of app controls is synched between cloud and local applications when network connection is available.



## 6.3 Local Logic on the device

The EDGE device has a powerful processor that allows running advanced automation logic without relying on the continuous internet connection.

Once an automation logic is defined on the Applications (Professional App advanced logic, or local app advanced controls) it is then stored on the device local memory, and will execute regardless of the device internet connection status.

The following logic are set to run locally:

- Schedules – can be set on the cloud Apps (Control, Professional) and synched with the device, or can be defined on the local Control App. If defined on the cloud it will be synched to the device and then run locally. If defined on the local App, it will be synched up to the cloud when there is a network connection. If no network connection is available – schedule can still be set and run on the local device.
- Interlocks, Anomaly rules – Can only be set on the cloud application, pushed to the device and run locally. Monitoring of activity will be available only on the Professional App tools (audit, unit diag) and only when cloud connection is available. If there was a network disconnect while actions took place, they will be logged locally and synched to the cloud for logging and trending.

**Note:** only rules where ALL units/sensors are connected to the same device will be pushed to the device.

All activity during disconnection period is logged locally and pushed\* up to the cloud when the network reconnects for future auditing.

**Note:** The size of logs kept on the device depends on local SD-card capacity. At least 48 hours will be stored on the provided SD-Card. Above this size, it depends on the exact site setup.

Functions that are pushed from cloud and work on device but are not reflected on local App:

- Interlocks

When sync is in progress between local and cloud Apps, a sync icon is shown on both sides if the user is browsing the relevant screen.

## 6.4 Connecting BACnet Clients

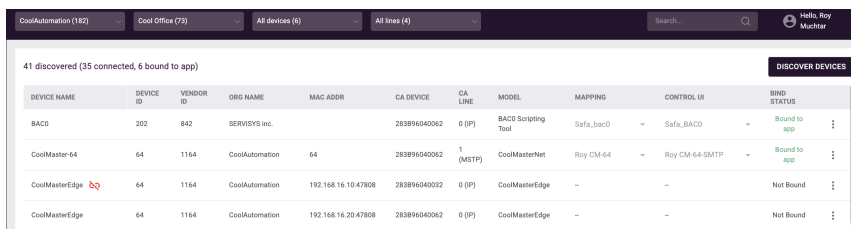
The EDGE device allows connection of local BACnet controllers, over BACnet IP or BACnet MSTP. To start integration, follow the BACnet configuration steps as outlined in [device configuration](#) section above.

For mapping a new BACnet device, log in to the cloud Professional app and follow the below steps

**Note:** the BACnet mapping and settings of controls mandates an active subscription to the Professional App on the site where the EDGE device is connected.

### 6.4.1 BACnet Device Mapping

1. Go to BACnet Mapping tab (Site Management ->BACnet Mapping)
2. BACnet Mapping main screen shows a list of all devices that were discovered on the site by any of the connected EDGE devices on the site.

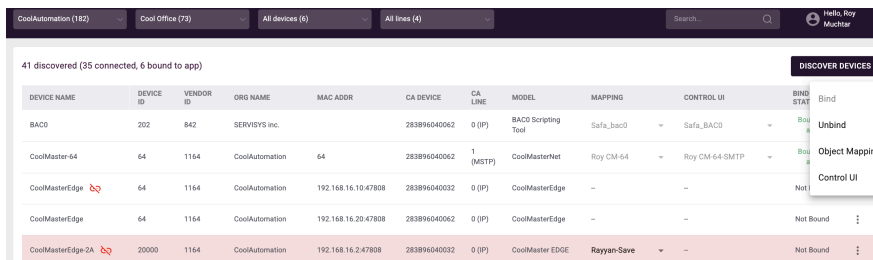


The screenshot shows the BACnet Mapping interface with a table of discovered devices. The table has columns for Device Name, Device ID, Vendor ID, Org Name, MAC Addr, CA Device, CA Line, Model, Mapping, Control UI, and Bind Status. A 'DISCOVER DEVICES' button is visible in the top right corner.

DEVICE NAME	DEVICE ID	VENDOR ID	ORG NAME	MAC ADDR	CA DEVICE	CA LINE	MODEL	MAPPING	CONTROL UI	BIND STATUS
BACD	202	842	SERVISYS inc.		283B9640062	0 (IP)	BACD Scripting Tool	Safa_bacD	Safa_BACD	Bound to app
CoolMaster-64	64	1164	CoolAutomation	64	283B9640062	1 (MSTP)	CoolMasterNet	Roy CM-64	Roy CM-64-SMTP	Bound to app
CoolMasterEdge	64	1164	CoolAutomation	192.168.16.10:47808	283B9640032	0 (IP)	CoolMasterEdge	--	--	Not Bound
CoolMasterEdge	64	1164	CoolAutomation	192.168.16.20:47808	283B9640032	0 (IP)	CoolMasterEdge	--	--	Not Bound

**Note:** the list will also show BACnet devices that were added in the past and now disconnected highlighted in light red. You can remove them by clicking the Delete option (through the 3 dot icon)

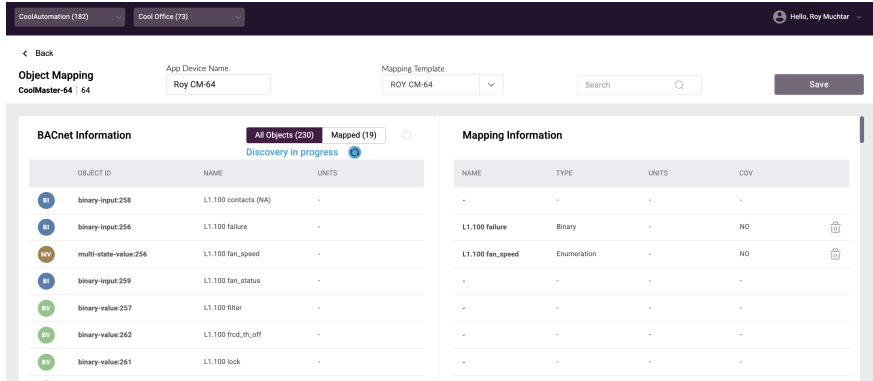
3. When entering the BACnet Mapping tab, a discovery process starts automatically (devices on connected BACnet networks, not the whole objects discovery)
4. To start a BACnet object mapping process for a device, click the 3 dots icon for a specific device and select **Object Mapping**.



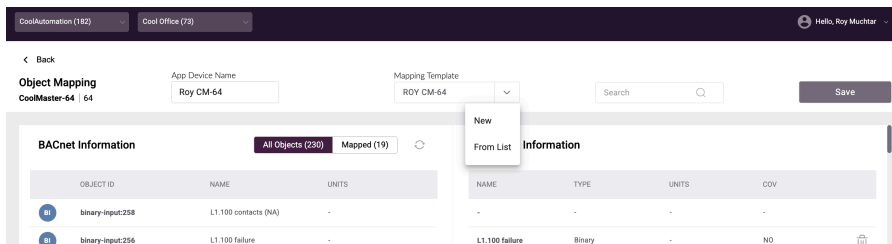
The screenshot shows the BACnet Mapping interface with a context menu open over the 'CoolMasterEdge' device. The menu options are Bind, Unbind, Object Mapping, and Control UI. The 'CoolMasterEdge-2A' device is highlighted in light red.

DEVICE NAME	DEVICE ID	VENDOR ID	ORG NAME	MAC ADDR	CA DEVICE	CA LINE	MODEL	MAPPING	CONTROL UI	BIND STATUS
BACD	202	842	SERVISYS inc.		283B9640062	0 (IP)	BACD Scripting Tool	Safa_bacD	Safa_BACD	Bound to app
CoolMaster-64	64	1164	CoolAutomation	64	283B9640062	1 (MSTP)	CoolMasterNet	Roy CM-64	Roy CM-64-SMTP	Bound to app
CoolMasterEdge	64	1164	CoolAutomation	192.168.16.10:47808	283B9640032	0 (IP)	CoolMasterEdge	--	--	Not Bound
CoolMasterEdge	64	1164	CoolAutomation	192.168.16.20:47808	283B9640032	0 (IP)	CoolMasterEdge	--	--	Not Bound
CoolMasterEdge-2A	20000	1164	CoolAutomation	192.168.16.2:47808	283B9640032	0 (IP)	CoolMaster EDGE	Rayan-Save	--	Not Bound

5. When the **Object Mapping** screen opens, an object discovery process starts automatically. This process can take a few minutes. While discovery is in progress, the indication (Discovery in progress) is shown. This process can take up to 10 minutes.



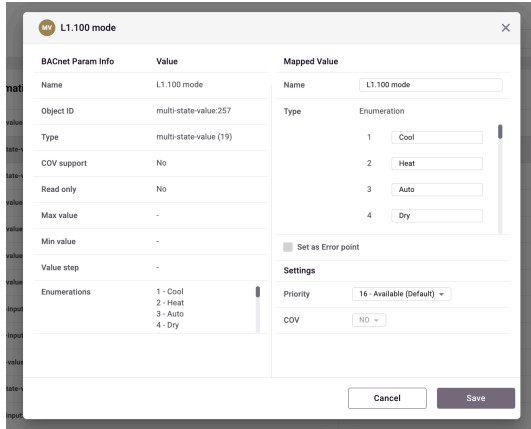
- Users can set the name for how device will appear in the application (this does not change the device name on the BACnet network) with the **App Device Name** fields
- You can navigate between the list of all objects and the list of only the objects that you already mapped by clicking on the All Objects/Mapped toggle.
- The mapping is made in “**Templates**”. Users can use an existing template that is already available on the site or create a new template using the “Mapping template” button. A new or existing template must be selected before any objects can be mapped,



- Mapping of objects – you can select which of the device objects you want to map into the application.
- To map an object, double click the object line. The map object pop up will open and you can make the related settings for this specific object.

Different BACnet object types have different settings available.

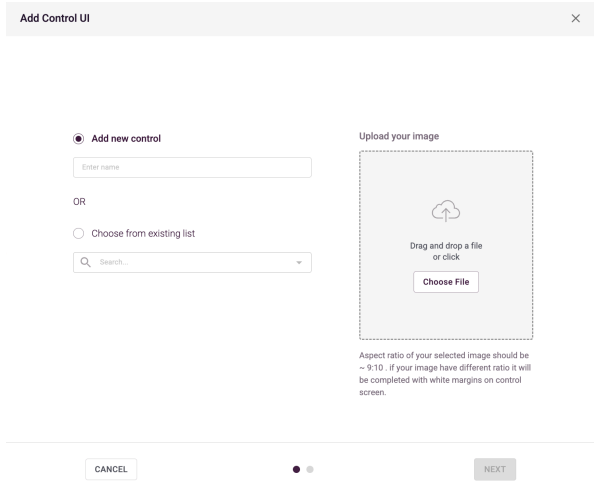
You can set the Name (to be shown in the application), text enumerations (for Multi Value object types), set the allowable range for writing to analog values , define if this object should trigger an alert in the app, set priority for BACnet write communication, set if to use COV or not (future).



11. If **setting an object as error**, the app will also allow you to set the value for cleared alert. The default clear value is 0. If an object is defined as error, when error occurs, it will trigger an error on the application and will be added as an alert in the Alert Log and also users can configure to receive notifications for this error in the professional App.
12. Up to 20\* objects per device can be mapped. If you reached 20 object and want to delete one mapped object and replace with another, use the trash icon on the objects list.
13. When objects mapping is completed, click save to save all changes to the template.
14. Click 'back' to return to the main device mapping screen. By default, your new template will be selected for the BACnet device.
15. To set (or select a different) a mapping template, use the dropdown arrow in the device 'Mapping' column.

## 6.4.2 BACnet UI Template

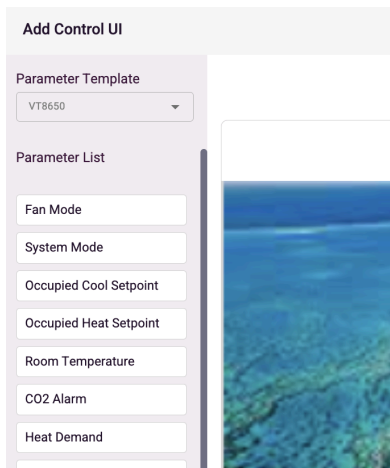
1. Setting a **UI Template** - UI template allows you to define a basic layout of main controls and monitoring information in the Control Tab for the mapped BACnet device. Click the 3 dot menu for the BACnet device and select '**Control UI**'. This will open the Control UI template creation wizard



2. Select a **background image** (static) for the control UI when this BACnet device is show on the App Control Tab.

Maximum image size is 2MB . It is recommended to use an image with aspect ratio of 9:10 to assure it renders well later in the application Control page.

3. Select the **parameter template** you want to use for setting on the UI Control template. The list will include all **object templates** that were created for this site.



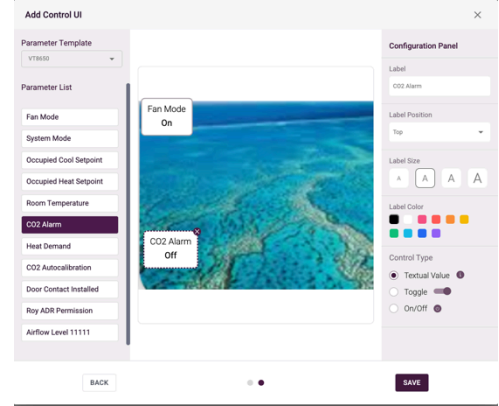
4. Drag and drop parameters from the left side into the image canvas.
5. Once s parameter (object) is set on the canvas, you can set its configuration using the right pane of pop up. You can set name for the parameter label, set where to place the label, set text size and color and (depending on the Object type) set the control type to be used on the screen.

Following Control types are available:

- o Textual Value – read only representation of the actual object value
- o Toggle

- On/Off button – for binary objects with ability to set on/off
- List – for Multi Value objects. Will open a dropdown of all options to select from
- Up/Down Arrows – for numerical values where the user can set the value up or down in steps.

**Note:** the up down value settings are directly correlated with the setting of the object mapping. User must properly set the upper and lower value limit, and also the steps of value changes (e.g. for room setpoint, can set upper to 75, lower to 65, steps to 1F).



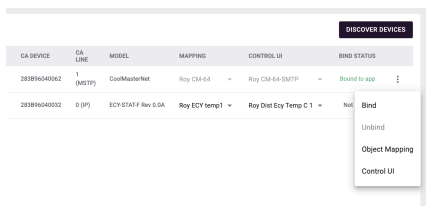
6. After completion and saving of the Control UI template, you can select this template and apply it to your device in the BACnet Mapping screen. Use the device line 'Control UI' column to get the dropdown of available templates and select your template.

2 discovered (2 connected, 1 bound to app) DISCOVER DEVICES

DEVICE NAME	DEVICE ID	VENDOR ID	ORG NAME	MAC ADDR	CA DEVICE	CA LINE	MODEL	MAPPING	CONTROL UI	BIND STATUS
CoolMaster-64	64	1164	CoolAutomation	64	283896040062	1 (MSTP)	CoolMasterNet	Roy CM-64	--	Bound to app
ECY-STAT-F-4EE9A4	16101	364	Distech Controls, Inc.	192.168.16.101:47808	283896040032	0 (IP)	ECY-STAT-F Rev 0.0A	Roy Ecy temp1	Roy Dist Ecy Temp C 1	Not Bound

Note: Object Mapping and Control UI templates are associated with a device's BACnet vendor and model. Templates created for one device can be applied to other BACnet devices with the same vendor and model information.

7. Connect the BACnet device to the App and start monitoring the data points – click the 3 dot menu on the device line and select Bind. the status of the device will turn green and show “Bound to App”



8. After the device is “Bound to App”, all objects are monitored continuously and pushed up to the cloud application.
9. Available functions for BACnet mapped devices when using the cloud application:
  - a. Control Tab – control and monitor the device in real time. By default, all BACnet units are mapped into a group called “All BACnet devices”. User can map them to other groups.
  - b. When selecting a BACnet unit on the control tab it will show the Control UI template with the latest values as read from the BACnet device.

- c. Unit Diagnostics – monitor all historic object values and correlate them over time. All mapped BACnet points are available for trending on the graph.
  - d. Alert log see alerts on BACnet device disconnect, or on Errors on this BACnet device. Errors on the BACnet object can be mapped using the BACnet mapping process.
  - e. Interlock – create complex rules that include conditions and actions on the parameters from the BACnet devices by selecting the source as BACnet device and the relevant device in the list.
10. To disconnect a BACnet device from the App, go to the BACnet devices list (BACnet Mapping main screen) and on the ‘3 dot menu’ click “Unbind”. This will stop collecting data for this BACnet device.
  11. BACnet devices that are not detected on the line (cable disconnect, device was disconnected, other reason) – the BACnet device row will be marked in red and a ‘Disconnect’ symbol will be shown next to the device name.
  12. To remove a device from the site list – use the ‘Delete’ option in the ‘3 dot menu’

**Note:** The Disconnect option is only available if the device is not communicating on the BACnet line. Otherwise this device will keep coming up when discovering the line using the Discovery button.

CoolMasterEdge	64	1164	CoolAutomation	192.168.16.104.47808	28389640062	0 (P)	CoolMasterEdge	-	-	Not Bound	⋮
CoolMasterEdge	64	1164	CoolAutomation	192.168.16.204.47808	28389640062	0 (P)	CoolMasterEdge	-	-	Not	Bind
CoolMasterEdge 2A	20000	1164	CoolAutomation	192.168.16.2.47808	28389640032	0 (P)	CoolMaster EDGE	Rayyan-Save	-	Not	Unbind
CoolMasterEdge 2A	20000	1164	CoolAutomation		28389640062	0 (P)	CoolMaster EDGE	-	-	Not	Object Mapping
CoolMasterEdge-67	67	1164	CoolAutomation	192.168.16.224.47808	28389640062	0 (P)	CoolMaster EDGE	ObjTest193	-	Not	Control UI
CoolMasterNet-65	65	1164	CoolAutomation	192.168.16.104.47808	28389640032	0 (P)	CoolMasterNet	-	-	Not	Delete
CoolMasterNet-65	65	1164	CoolAutomation	192.168.16.7.47808	28389640062	0 (P)	CoolMasterNet	-	-	Not	

## 6.5 Connect Modbus Power meters

To connect power meters (for PPD or other needs), use the [config app to set the related line](#) (L1, L2 or L3) to [Modbus RTU](#) and then select the specific Power meter model that is connected on that line the baud rate and polarity.

The current implementation only supports a single power meter type on the same RS485 line. You can connect several meters of the same type, but make sure they have unique IDs.

Power meters can be used as a source for PPD calculation or viewed in control app (to monitor consumption), Unit diagnostics and interlocks. All these functions require an active subscription to the cloud Professional App.

## 6.6 GPIO

Connect IO devices to the EDGE and use these inputs as sensor inputs for triggering actions and interlocking.

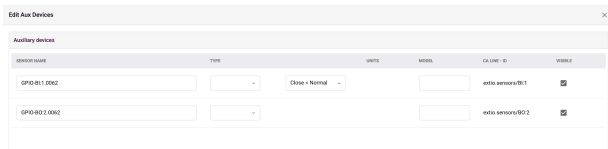
The EDGE device can connect 2 x I/O devices, each one can be of the following type:

- Digital **(Binary) Input** (0-5V) – monitor a sensor with 0/1 states, with setting option for Normally Open (N.O) or Normally Close (N.C).

The following automation procedures are also available using these inputs if selected **Action** on the device configuration. The logic is executed on the local device and does not require cloud connection.

- Action (Turn all indoor units OFF)
- Action (Turn all indoor units ON)

After configuring the GPIO, you will be able to see the devices as Auxiliary devices box in the Site Management under the EDGE device. You can enter the Aux box and then see them as sensors.



The GPIO 'sensors' can be seen on the control tab (open/close states), unit diagnostics (External sources), interlocks (Input device)

## 7. Specifications

Parameter		Data
Power	Input	9-24 VDC (120VAC 60 Hz /220VAC 50 Hz)
	Consumption	3.6 Watt
Mounting		Magnets, DIN Rail (adapter required)
Operating conditions	Ambient temperature	-10°C ~ 60°C / 14°F ~ 140°F
	Humidity	0% ~ 96% non-condensing
Storage conditions	Ambient temperature	-10° C to +60° C / +14 F to +140 F
	Humidity	0 % ~ 96 % non-condensing
Dimensions	H x W x D	65 x 118 x 32 [mm] / 2.56 x 4.64 x 1.25 [In]
LCD	Size / color / interface	2 x 8 / grey / HD44780
Communication functions	HVAC	HVAC terminals
	Modbus RTU	RS-485 communication line
	Ethernet	10/100 Mbps
	BACnet MSTP	RS-485 communication line
	USB Device	12 Mbps
	BACnet/Modbus IP	Ethernet
Maximum PBUS wiring length (ft/m)		3280/1000 (2 Conductor 20-22 Awg Shielded Twisted Pair Cable)
Maximal allowable wiring length (to BMS) over RS485		1000 [m] / 3300 [ft]
Maximal allowable wiring length (to router) over Ethernet		137 [m] / 450 [ft]

Table 8 – Specifications