Automation Gateway BACnet/IP

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Every conceivable measure has been taken to ensure the accuracy and completeness of this documentation. However, as errors can never be fully excluded, we always appreciate any information or suggestions for improving the documentation.

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We wish to point out that the software and hardware terms as well as the trademarks of companies used and/or mentioned in the present manual are generally protected by trademark or patent.

WAGO is a registered trademark of WAGO Verwaltungsgesellschaft mbH.

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WAGO

Terms

1.1 Typographical Conventions

Number Notation

100	Decimals: Normal notation
0x64	Hexadecimals: C-notation
'100'	Binary: In single quotation marks
'0110.0100'	Nibbles separated by a period

Text Formatting

italic	Names of paths or files
bold	Menu items, entry or selection fields, emphasis
`Code`	Sections of program code
>	Selection of a menu point from a menu
"Value"	Value entries
[F5]	Identification of buttons or keys

Cross References / Links

	Cross references/links to a topic in a document
	Cross references / links to a separate document
	Cross references / links to a website
	Cross references / links to an email address

Action Instructions

✓ This symbol identifies a precondition.

1. Action step

2. Action step

   ⇨ This symbol identifies an intermediate result.

⇨ This symbol identifies the result of an action.

Lists

- Lists, first level
  - Lists, second level

Figures

Figures in this documentation are for better understanding and may differ from the actual product design.

Notes

> ⚠ **DANGER**
>
> **Type and source of hazard**
>
> Possible consequences of hazard that also include death or irreversible injury
>
> - Action step to reduce risk

> ⚠ **WARNING**
>
> **Type and source of hazard**
>
> Possible consequences of hazard that also include severe injury
>
> - Action step to reduce risk

> ⚠ **CAUTION**
>
> **Type and source of hazard**
>
> Possible consequences of hazard that include at least slight injury
>
> - Action step to reduce risk

> ❗ *NOTICE*
>
> **Type and source of malfunction (property damage only)**
>
> Possible malfunctions that may restrict the product's scope of functions or ergonomics, but do not lead to foreseeable risks to persons
>
> - Action step to reduce risk

> ⓘ **Note**
>
> **Notes and information**
>
> Indicates information, clarifications, recommendations, referrals, etc.

1.2 Legal Information

Intellectual Property

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Third-party trademarks are referred to in the product documentation. The "®" and "™" symbols are omitted hereinafter. The trademarks are listed in the Appendix (🖰 **Protected Rights [▶ 60]**).

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W/AGO

Subject to Change

The instructions, guidelines, standards, etc., in this manual correspond to state of the art at the time the documentation was created and are not subject to updating service. The installer and operator bear sole responsibility to ensure they are complied with in their currently applicable form. WAGO Kontakttechnik GmbH & Co. KG retains the right to carry out technical changes and improvements of the products and the data, specifications and illustrations of this manual. All claims for change or improvement of products that have already been delivered – excepting change or improvement performed under guarantee agreement – are excluded.

Security

2.1 General Safety Regulations

- This documentation is part of the product. Therefore, retain the documentation during the entire service life of the product. Pass on the documentation to any subsequent user of the product. In addition, ensure that any supplement to this documentation is included, if necessary.
- Any actions related to the use of WAGO software may only be performed by qualified staff with sufficient knowledge to use the respective PC system.
  Steps in which files are created or changed on a PC system may only be performed by qualified employees with sufficient knowledge in the administration of the PC system used in addition to file creation or modification.
  Steps that change the PC system's behavior within a network may only be performed by qualified employees with sufficient knowledge of administration of the responsible network.
- Comply with the laws, standards, guidelines, local regulations and accepted technology standards and practices applicable at the time of installation.

2.2 Indirect Safety

- If automation solutions are implemented that can cause personal injury or major property damage in the event of failure, you must take appropriate measures to ensure that the system remains in a safe operating state even in the event of failure.
- Give all products in a network different IP addresses.
- Never connect a PC on which a DHCP server is installed to a global network. In larger networks, there is usually already a DHCP server that can cause collisions and subsequent network failure.
- Use only the latest security software.
- Uninstall or disable all software components or programs on your PC that are not required for the intended use.
- If there are access problems, check whether the *e!RUNTIME* runtime system is activated on the connected devices. Use a software tool (depending on the hardware) to perform the check or use the Web-Based Management System.

Visualization Minimum Requirements

Min. 1280 x 720 screen resolution is recommended to use the Automation Gateway web visualization.

The following browsers have been successfully tested with the Automation Gateway:
- Google Chrome Version 72.0
- Mozilla Firefox Version 65.0
- Microsoft Edge Version 44.17763

> ### ⓘ Note
>
> **Web Visualization**
>
> Only one browser (client) at a time can access Automation Gateway web visualization.

> ### ⓘ Note
>
> **Other Browsers**
>
> It may be possible to use other browsers. Functional limitations cannot be ruled out.

> ### ⓘ Note
>
> **BACnet knowledge is required!**
>
> This manual describes connecting the Automation Gateway BACnet/IP to a BACnet/IP client (e.g., building control system). It is assumed that the user has a basic knowledge of BACnet.

Software Versions

The Automation Gateways are delivered with pre-installed software from the factory. The software may be out of date. Furthermore, incompatibility with the Viessmann heat generator cannot be excluded. It is therefore recommended to always use the latest software version of the Automation Gateway.

> ⓘ **Note**
>
> **Software Versions**
>
> The current software versions of the Automation Gateway and the interface for the heat generator can be downloaded from the WebVisu "Information" menu under "Version Gateway" / "Version Interface". See also "⚙ **Information [▷ 23]**".

Section "Software Update" below describes in detail how to update the Automation Gateway software.

WAGO

Software Update

The software update requires you to download the following installation files at ⊕ **Automation Gateway** as a zip archive.

ⓘ **Note**

The existing settings are retained!

The configuration parameters of the data points (selection) as well as the user administration (gateway / WBM) are cached during installation on the micro SD card and are retained after the update.

ⓘ **Note**

You need the WAGOupload software!

The steps described below require that you have downloaded WAGOupload version 1.12.0.0 or higher. The software is available at ⊕ **www.wago.com** for download free of charge.
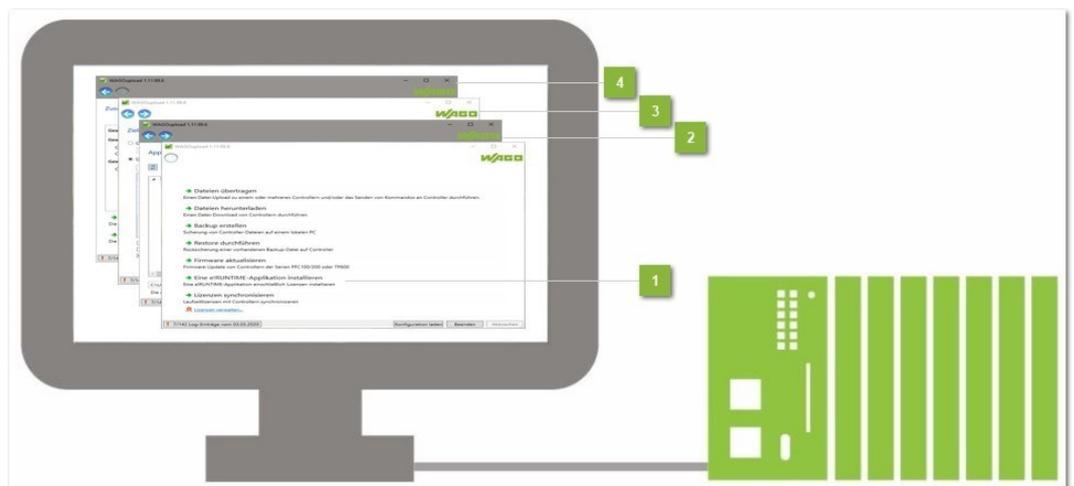
Figure 1: WAGOUpload Installation

Launch WAGOupload [1]

1. Launch the "WAGOupload" software.

2. Select the menu item "Install an *e!RUNTIME* Application".
    Note: If the WAGOupload execution file ".exe" is in the same directory as the installation file ".appload", WAGOupload starts in a simplified view. Step 2 "Select an Application Installation File" is skipped.

Figure 2: WAGOupload Simplified View

Select Application File [2]

1. In the file browser, navigation to the "/Software" subfolder of the ZIP archive.

2. Select the installation file with the .appload extension.

Select Target Controller [3]

1. In the dialog, enter the IP address of your controller or launch the search function. The identified devices are listed.

2. Select the controller where the application should be installed.

> ### ⓘ Note
>
> **Assign an IP address!**
>
> The target controllers must have an IP address to allow installation via WAGOupload. See also Section ⤶ **Set the IP-Adress [▷ 15]**.

Start Installation [4]

A summary of the settings previously made is displayed. The installation can then be started. The software is installed on the device after the reboot.

> ### ⓘ Note
>
> **The IP address is retained when the software is updated!**
>
> After the software update, the previously set IP address of the Automation Gateway is retained.

> ### ⓘ Note
>
> **Observe the WAGOupload manual!**
>
> Detailed information on using WAGOupload can be found in the software manual, which is also available to download at www.wago.com.
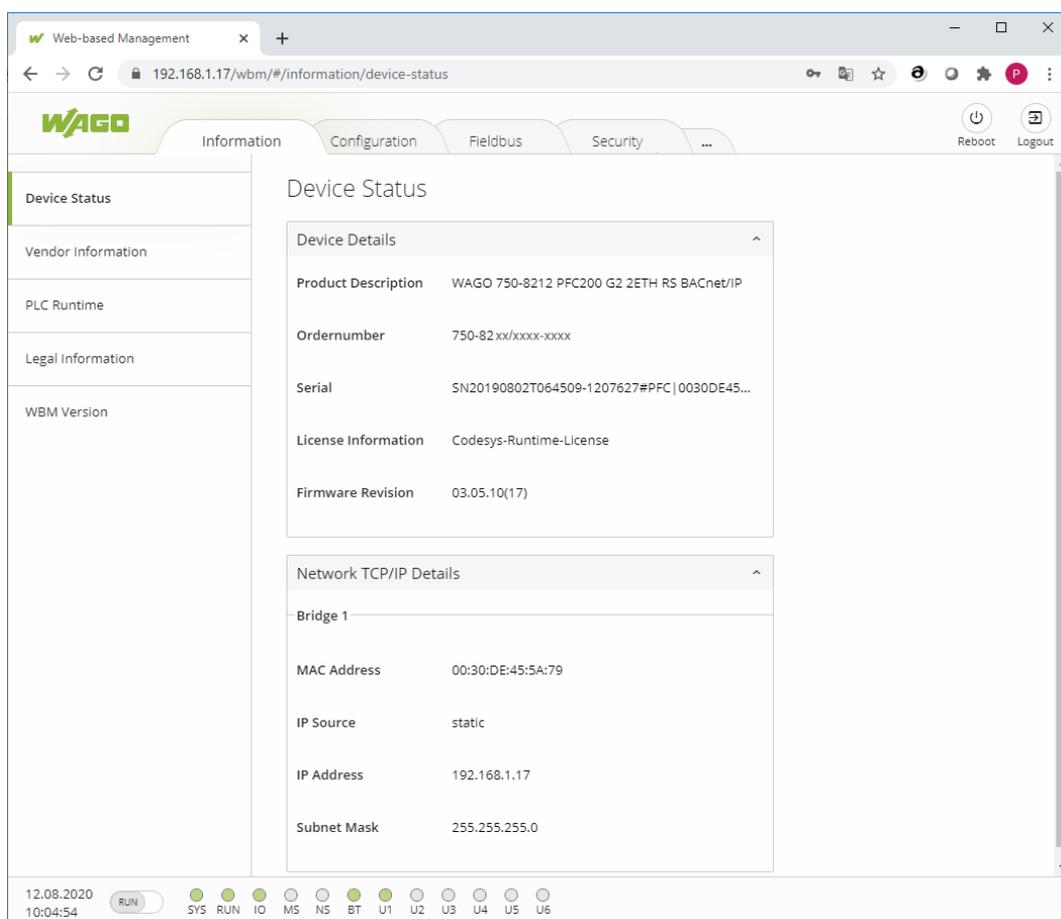
WBM Settings

You can call up Web-Based Management (WBM) in the Internet browser by entering the following: "https://<Controller-IP>/wbm" (here: https://192.168.1.17/wbm). A login dialog appears. By entering the WAGO default user "admin" and the associated password(see table at 🖰 **Change Password [▶ 14]**), the page above opens.

As long as the password corresponds to the initial state as delivered, a security message is displayed on the page. Bypassing of the security message (Default Password Security message: you are using the default password!) must be approved to open the WBM.

6.1 Change WBM Passwords
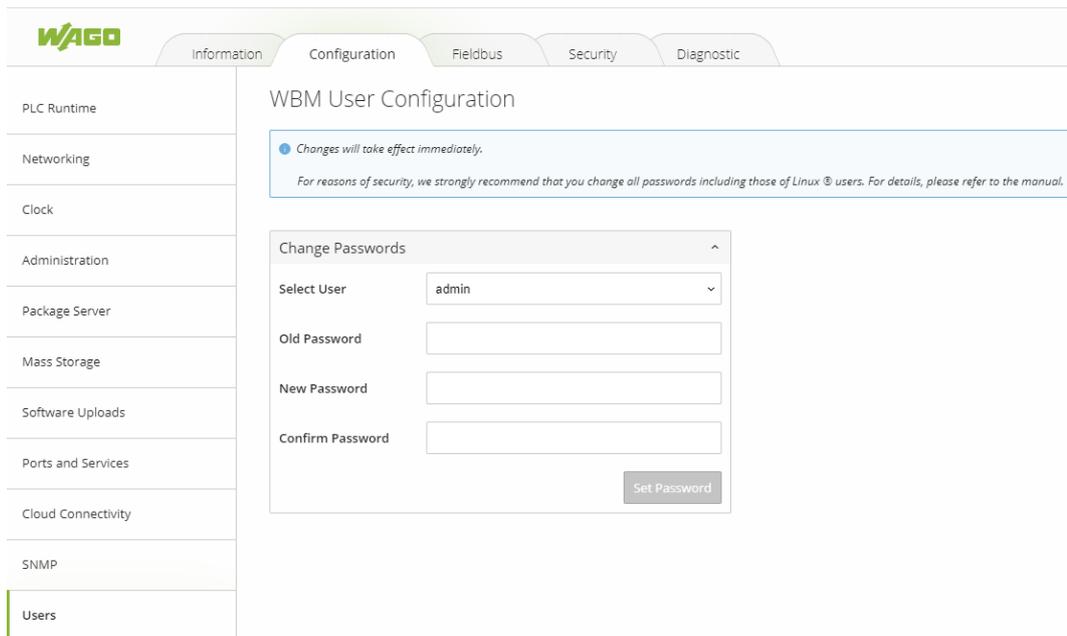
Figure 4: Figure : Change Passwords

To change the passwords, please follow these steps:

1. Login as the user "admin" and confirm this by clicking **[Submit]**

   ⇨ If you have not yet changed the password, the following message appears: „Default Password Security message: you are using the default password!"

2. In the WBM, switch to the tab "Configuration".

3. Then click to the submenu **Users**.

4. Assign new passwords for the default users in the "Change Password" dialog.

User name	Rights	Default Password
admin	All (Administrator)	wago
user	Limited	user

ⓘ Note

Change passwords!

The default passwords are documented in these instructions and thus do not offer adequate protection. Change the passwords to meet your particular needs! If you do not change these passwords, a warning will appear each time you call up a website after logging in.

ⓘ Note

Forgotten password!

If you have forgotten the password for a gateway, please contact Viessmann Support at ⊕ **Automation Gateway**.

6.2 Set the IP-Adress

The IP address of the Automation Gateway is 192.168.1.17 by default. Follow the steps below to change the IP address in the Automation Gateway WBM:

1. 1. Launch the Web-based Management (WBM) in the browser by entering the following in the address bar: "https://<Controller-IP>/wbm" (here: https://192.168.1.17/wbm).

2. In the Configuration tab, navigate to the Networking TCP/IP menu (you may need to log in with the WBM username and password, see " Change Passwords Login [14]").
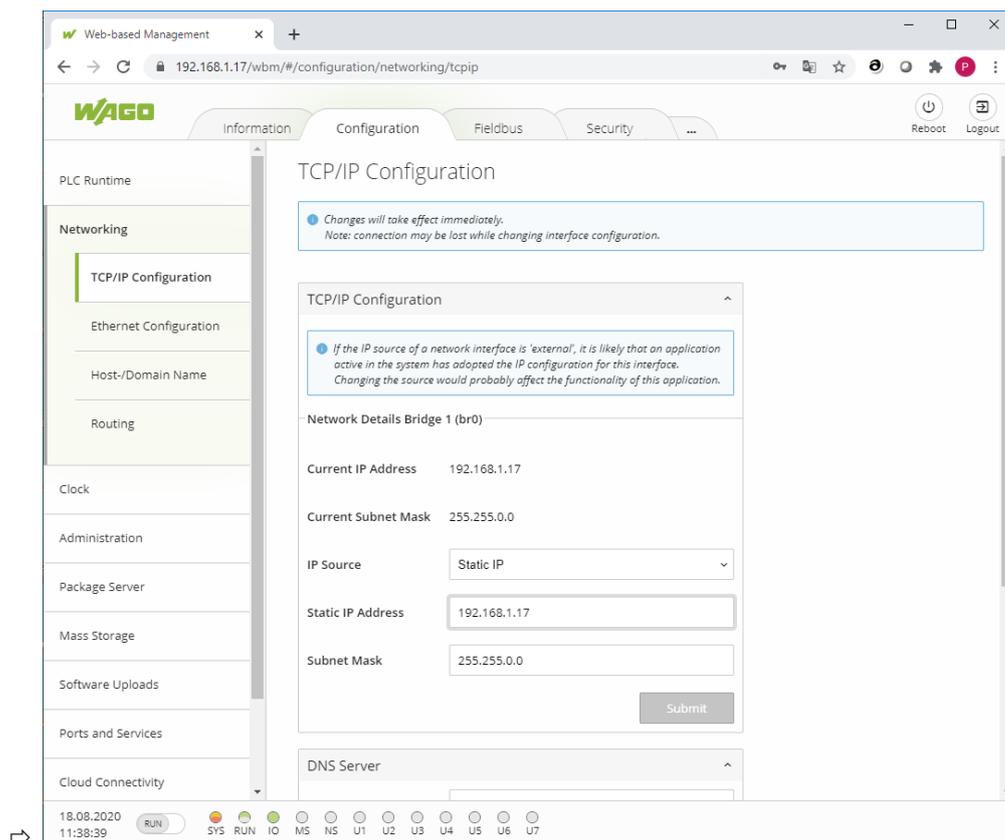
3. Confirm your entry by clicking the [**Submit**] button.

⇨ The IP address is applied immediately.

6.3 Setting the Date and Time

The system clock for the WAGO controller should be set to the current time and date, so that e.g., alarm messages in the alarm banner display the correct timestamp.

Time and date can be set in the web-based management of the Automation Gateway in the "Configuration" tab in the **Clock** menu**.** These settings are described in detail in the manual for the WAGO 750-8101 PFC Controller.
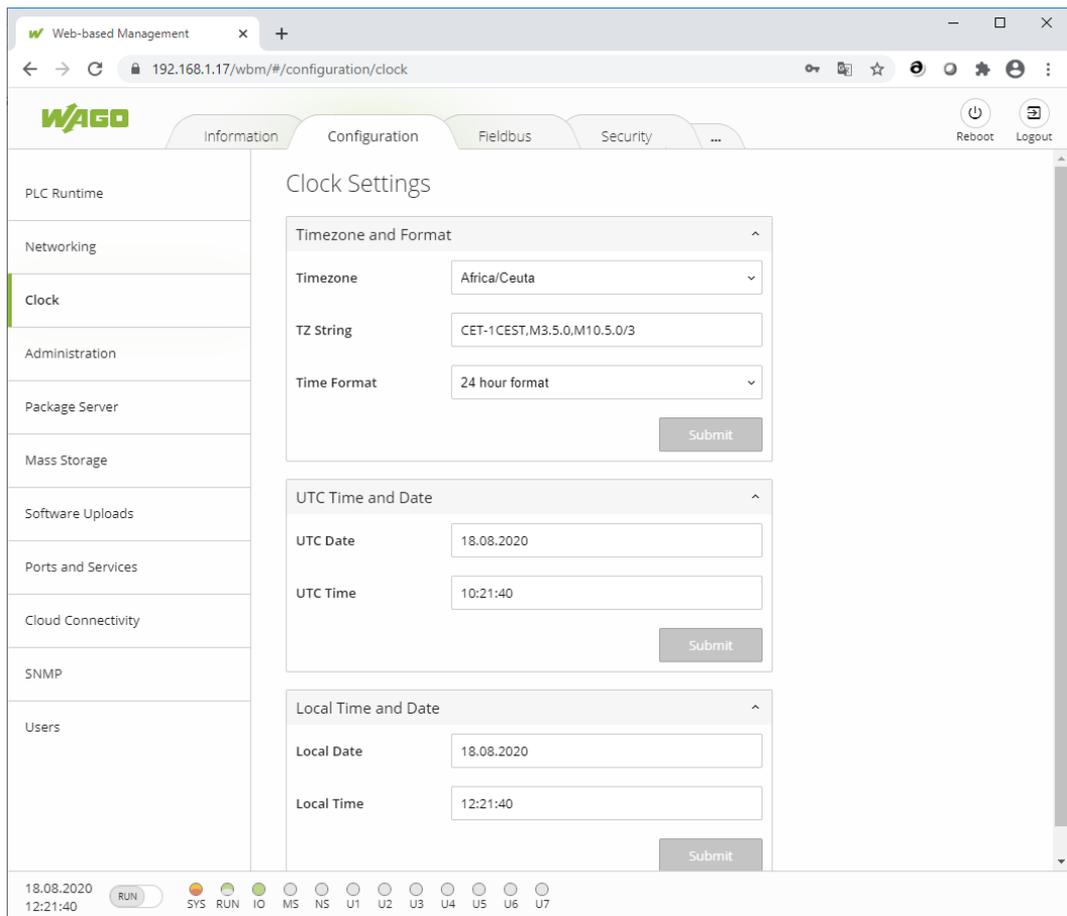
Figure 5: Figure : Setting the Date and Time

ⓘ Note

More information is available in the respective product manuals!

You can find more information about using the Web-based Management in the product manuals of the respective controllers. You can download the manuals in the download area under ⊕ **www.wago.com**.

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Application

7.1 Open the Web Visualization

The "Automation Gateway" application is called up in the Web browser via the following link: "https://<Controller-IP>/webvisu/webvisu.htm" (e.g., 🌐 **https://192.168.1.17/web-visu/webvisu.htm**).

> ### ⓘ Note
>
> **Browser Utilization**
>
> You can find details about using the Web browser in Section 🖱 **Visualization Minimum Requirements [▷ 9]**

7.2 Logging into the Application

1. Click the [**Login**] button. The "Login" dialog opens.

⇨
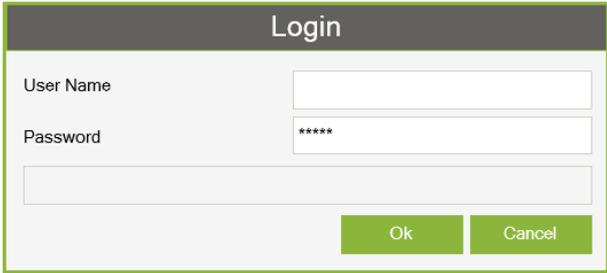
2. Log in using your username and password.
3. Confirm your entry by clicking [**OK**].

⇨ After a successful login, the main window opens.

7.3 General

You can find **Information**, **Project settings** and **Data backup** submenus in the "General" tab that are described in the sections below.
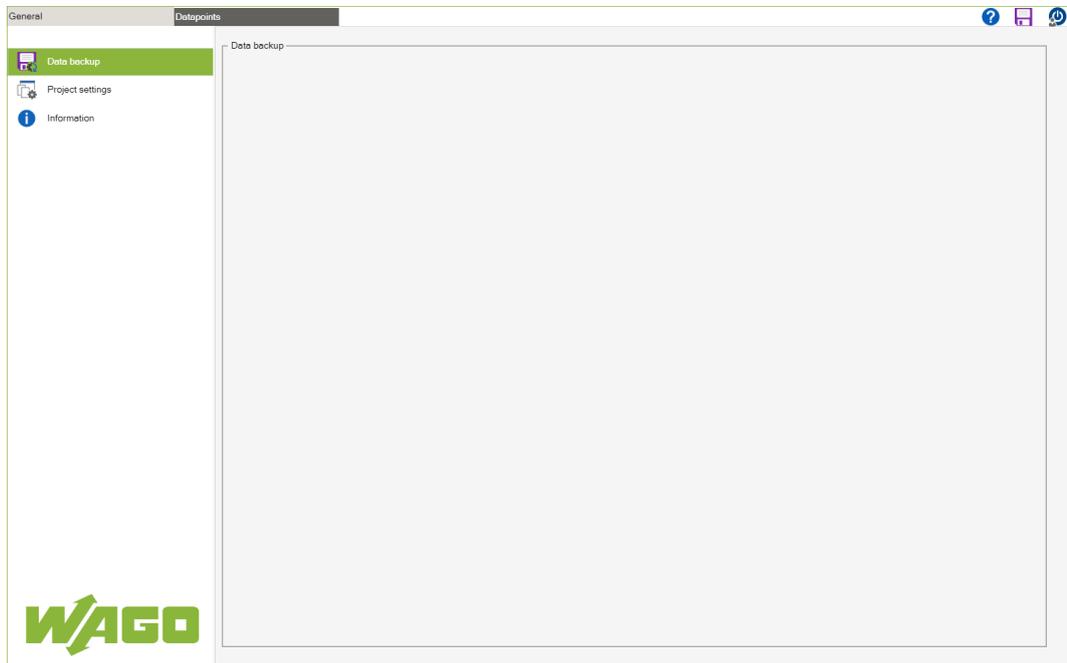
Figure 6: Figure : General

7.3.1 General Buttons

	Clicking the button launches the online help.
	Click the **[Save]** button to save the project settings and data point configuration to the internal memory of the Automation Gateway.
	Clicking the **[Logout]** button signs you out of the system.

7.3.2 Data Backup
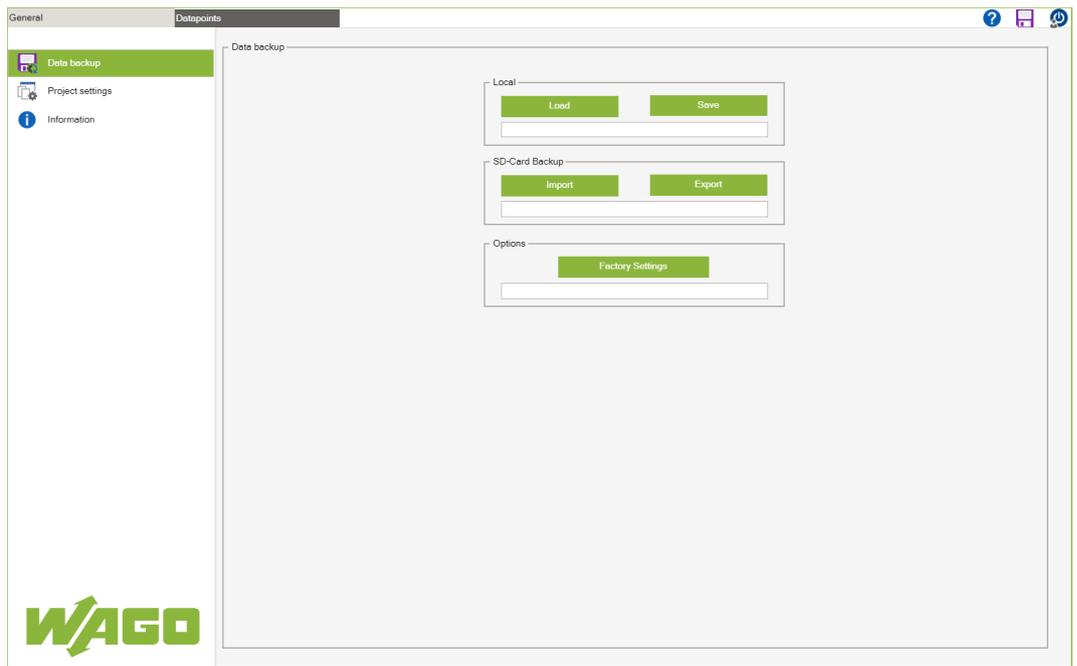
Figure 7: Figure : Data Backup

The buttons at the top right are described in Section ⌐ **General Buttons [▶ 18]**.

Local

Designation	Description
Load	Click the **[Load]** button to load the project settings from the internal memory of the Automation Gateway.
Save	Click the **[Save]** button to save the project settings to the internal memory of the Automation Gateway. **Note: To apply change settings in the Automation Gateway, you have to back up the local. Otherwise, any changed settings are lost after rebooting the gateway!**

SD Card Backup

The backup function can be used, for example, to transfer an analog configuration to multiple gateways.

Designation	Description
Import	Click the **[Import]** button to open the following dialog: Click **[Yes]** to load the project settings from external memory (SD card). All settings saved in the Automation Gateway are lost and replaced by the data loaded from the SD card. Click **[Cancel]** to cancel the operation. **Note: This function is only available if there is an SD card with the content of a "VAG_Config.Recipes.txtrecipe" file in the SD card slot of the Automation Gateway.**

Designation	Description
Save	Click the **[Save]** button to save the project settings to the internal memory of the Automation Gateway.
Export	Click the **[Export]** button to open the following dialog:
	Would you like to save the project settings internal before exporting to SD-Card?
	Yes No Cancel
	Click **[Yes]** to first save the project settings to the internal memory of that Automation Gateway and then to export the project settings to the SD card.
	Click **[No]** to export the project settings to the SD card.
	Click **[Cancel]** to cancel the operation.
	Note: This function is only available if there is an SD card in the SD card slot of the Automation Gateway.
	Note: The export function can be used, for example, to execute an analog configuration on multiple gateways.

Options

Designation	Description
Factory Settings	Click the **[Factory Settings]** button to open the following dialog:
	Reset to factory default?
	Ok Cancel
	Click **[OK]** to reset all project-specific settings to the values specified by the manufacturer and to then save them to the internal memory of the Automation Gateway.
	Note: The project settings are part of the project-specific settings (Project Information, Units and Language).
	Note: User passwords are not reset to the factory settings.
	Note: To apply change settings in the Automation Gateway, you have to back up the local. Otherwise, any changed settings are lost after rebooting the gateway!
	Click **[Cancel]** to cancel the operation.

7.3.3 Project Settings
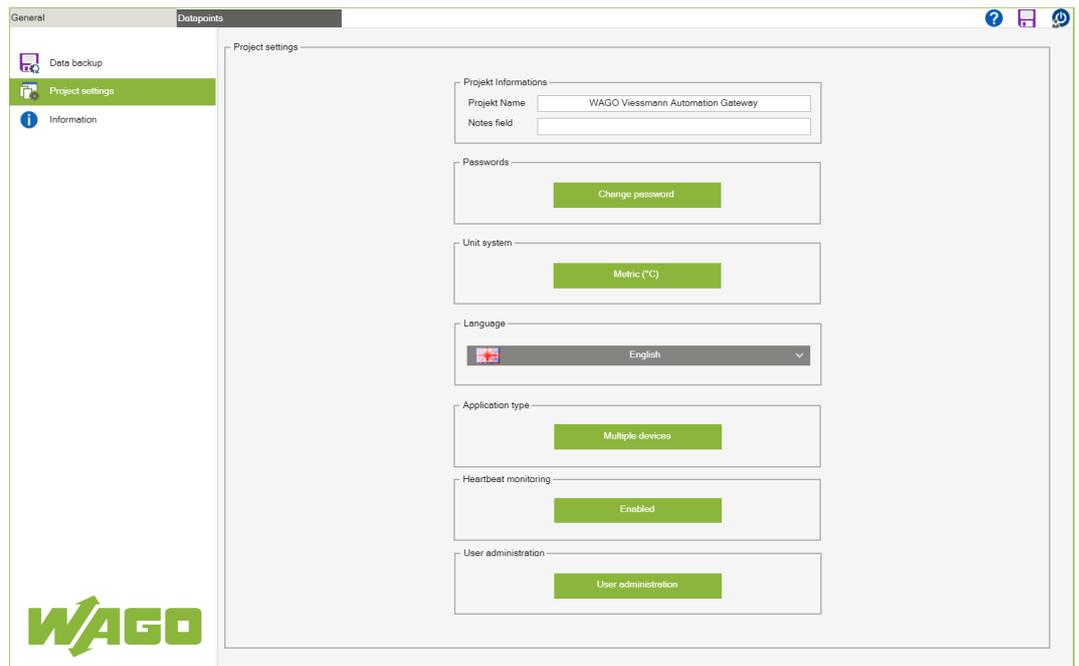
Figure 8: Project settings

Project Information

Designation	Description
Project Name	80-character input field for the project name
Note Field	100-character input field for notes

Change Password

Designation	Description
Change Password	Click the **[Change password]** button to open the dialog to change the password. You enter the old and the new passwords in this window. For security, the password must be confirmed. **[Ok]** to change the password and close the dialog window. If you make an error when entering the password, the dialog remains open and displays the error message. Click **[Cancel]** to cancel the operation.
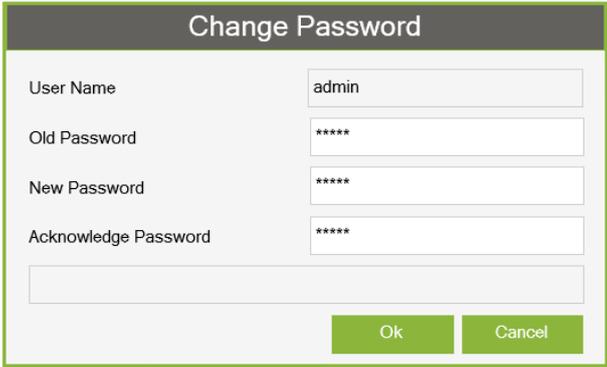
Units

Designation	Description
Units	You can define the unit settings for all dimensions of the Automation Gateway. You can choose between the metric and imperial unit systems.

Language

Designation	Description
Language	You can select the language for the user interface and data points in this selection field. • German • English • French

Heating System Type

Designation	Description
Heating System Type	In the selection field, you can choose between "Single device" or "Cascaded devices". If "single device" is selected, the gateway only supports a single heat generator. If "Cascaded devices" is selected, the gateway supports up to eight heat generators at the same time (more information is available in "📖 **Multi-Boiler Operation [▶ 48]**").

Heartbeat Monitoring

Designation	Description
Heartbeat Monitoring	For the heat generator to accept the setpoints described via BACnet (e.g., the heating circuit temperature setpoint), the data point "External request (MV-1)" must be written from the BMS at least every 10 seconds (with a "3" for BACnet). When a value is received by the gateway, it is immediately transmitted to the heat generator and then the "MV-1" object is reset to "1". The "MV-1" object must then be written with a "3" from the BMS again (within 10 seconds). If the connection to the BMS is broken and cyclic writing of the "MV-1" object also interrupted, the heat generator regulates based on its internal setpoints. **[Enabled]**: Default setting in the gateway. It is expected that the "External request (MV-1)" object will be written cyclically from the BMS, so that the BMS setpoints are valid (see above). **[Disabled]**: The "External request (MV-1)" object does not have to be written cyclically by the BMS. If the connection to the building management system is interrupted, the heat generator continues to adopt the setpoints previously specified by the building management system (the default values of the heat generator are not used). **Note: In this case, the "External request (MV-1)" object must be written to at least once by the BMS so that the heat generator can identify the gateway and the specified setpoints from the BMS are valid.**
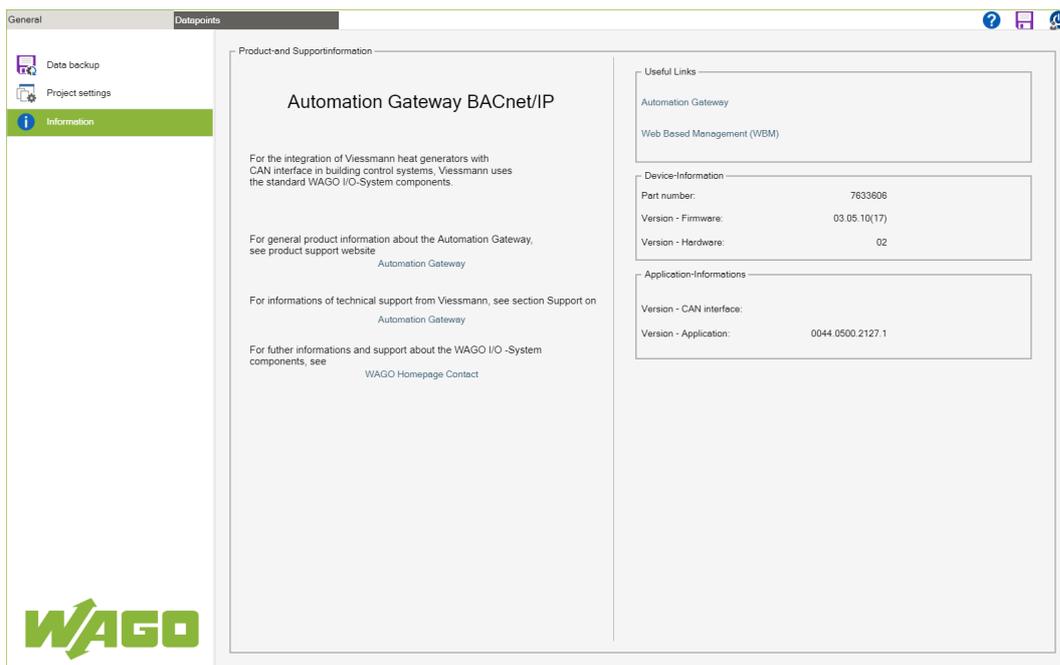
7.3.4 Information

Product and Support Information

Contact information at WAGO Kontakttechnik GmbH & Co. KG and Technical Support at Viessmann.

Useful Links

Designation	Description
Automation Gateway	Click the link to open a new browser window with the URL for the WAGO Automation Gateway information website. **Note: If the browser pop-up window is blocked, clicking the link will not open a new browser window.**
Web-Based Management (WBM)	Click the link to open a browser window with the URL for Web-Based Management of the Automation Gateway.

Device Information

> ⓘ **Note**
>
> **Note the hardware!**
>
> The Automation Gateway BACnet IP operates on the WAGO controller with item No. 750-8212/000-100.

Designation	Description
Item Number	Viessmann item number of the Automation Gateways BACnet/IP.
Version - Firmware	Firmware version of the Automation Gateway BACnet/IP.
Version - Hardware	Hardware version of the Automation Gateway BACnet/IP.

Application Information

Designation	Description
Version – CAN Interface	Software version of the heat generator interface **Note: The version is only displayed when there is an active connection to the heat generator.**
Version - Application	Automation Gateway software version

7.4 Data Points

Figure 10: Data Points

CAN Status

Click the **[CAN Status]** button to display all information related to the CAN-Bus. The dialog is described in the Section ⌐ **CAN Status [▶ 27]**.

BACnet Settings

Click the **[BACnet Settings]** button to display all information related to the BACnet. The dialog is described in the Section ⌐ **BACnet Settings [▶ 29]**.

Show Data Points

Designation	Description
Show Data Points	Click the **[Show data points]** button to open the following dialog: **Show datapoints** Are you sure you want to perform this action? [Yes] [Cancel] Click **[Yes]** to query the availability of data points in the heat generator. This function is described in Section ⌐ **Data Points > Show Data Points [▶ 34]** in detail. Click **[Cancel]** to cancel the operation.

Export Data Point List

Designation	Description
Export Data Point List	Click the **[Export Data Point List]** button to open the following dialog: **Create data point list as a CSV file?** Ok Cancel **[OK]** generates a data point list as a CSV file. You can find a detailed description of this function in Section ☝ **Data Points > Export Data Point List [▶ 37]**. Click **[Cancel]** to cancel the operation.

Filter

Click the **[Filter]** button to display a filter dialog. The dialog is described in the Section ☝ **Filter [▶ 32]**.

Alarm Banner

If an error is detected in the Automation Gateway BACnet/IP, an error message is displayed with the timestamp in the alarm banner. The timestamp is only displayed on the gateway and not transferred to the building control system. A typical error message appears as follows:

❗	2019-03-25 16:16:00 CAN Module -> CAN-Connection error	Quittieren 1 / 1
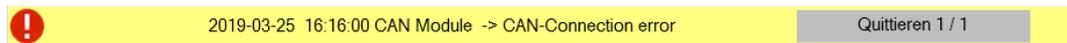
To acknowledge the alarm, click the [**Ack**] button. If the error persists, the acknowledged error message appears again in the alarm banner after a few seconds.

You can find a detailed description of all alarm banner error messages in Section ☝ **Alarm Banner – Messages [▶ 56]**.

ⓘ **Note**

Error messages!

Multiple error messages can arise in the Automation Gateway at the same time. The number of messages is indicated by a number in the [**Ack**]

Quit 1 / 1

button. This example indicates that there are two error messages at the same time.
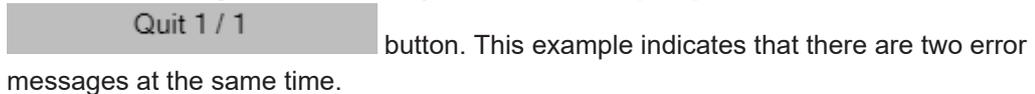
ⓘ **Note**

Contact Support!

If the remedy does not lead to the error messages being permanently acknowledged, please contact Viessmann Support at 🌐 **Automation Gateway**.

Data Points

All data points available in the heat generator are displayed in tabular form. The user can switch the data points ON/OFF and configure the data points. Data Point configuration is described in Section 🖱 **Data Point Configuration [▸ 34]**.

7.4.1 CAN Status

This section describes the communication status between the Automation Gateway and the heat generator (application type single boiler).
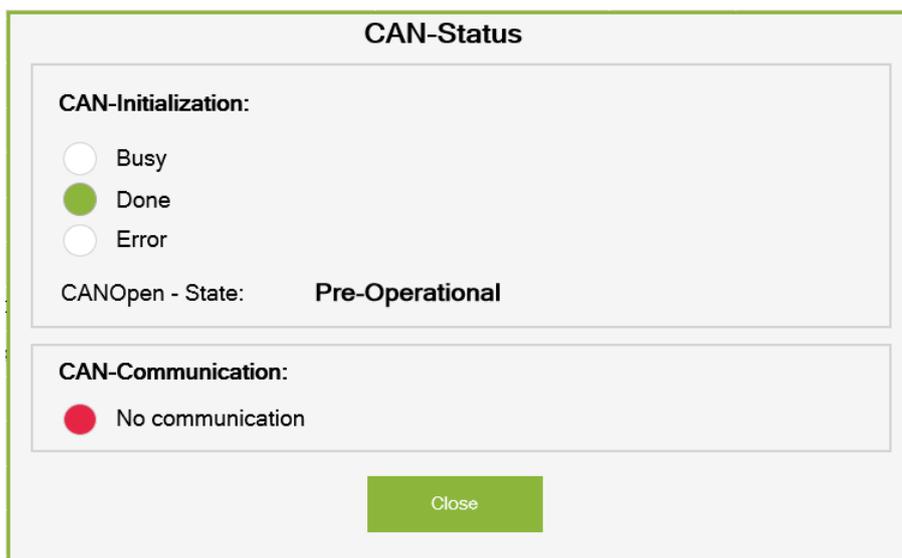
Figure 11: CAN Status for "Single Boiler" Application Type

CAN-Initialization

Describes the initialization phase of the CAN connection.

Table 1: CAN Initialization

State	Light Color	Description	Corrective Action
Running	Green	Initializing	---
Completed	Green	Initialization completed successfully	---
Error	Red	An error has occurred during CAN initialization.	Please contact Viessmann Support under 🌐 **Automation Gateway**.

CAN Communication

Indicates the communication status between the Automation Gateway and heat generator status:

Table 2: CAN Communication

State	Light Color	Description	Corrective Action
Active	Green	Connection with the heat generator	---
No communication	Red	No connection with the heat generator	Check CAN connection (plug, line, terminating resistor, heat generator ON). If you cannot eliminate the error, please contact Viessmann Support at 🌐 **Automation Gateway**.

> ### ⓘ Note
>
> **CAN Status in Cascade Mode**
>
> If "Multi-boiler" application type is selected under "Cascaded Devices" under 🖰 **Project Settings [▶ 21]** the area for CAN communication looks different than shown above. For more details, see Section 🖰 **CAN Status in Cascade Mode [▶ 48]**.

7.4.2 BACnet Settings

This dialog shows some important device information for the Automation Gateway BACnet/IP. This information is taken from the device object of the gateway.

BACnet Device Information

Designation	Property Type	Description
Instance No.	required	Instance number (the gateway can be uniquely identified in a BACnet/IP network from the instance number).
Location	optional	Installation location of the gateway.
Description	optional	Description
Model Name	required	Gateway controller model number.
Object Name	required	Gateway object name. By default, the MAC address of the gateway is always entered here. This MAC address should match the address of the gateway (see sticker on the device).
Local Date	optional	Local Date
Local Time	optional	Local Time
System Status	required	System status of the device object. The system status according to the BACnet standard can have the following values: • Operational • Operational • Read Only • Download Required

Designation	Property Type	Description
		• Download in Progress • Non-Operational • Backup Required

ⓘ **Note**

Note the system status!

The system status "STATUS_OPERATIONAL" shows that the BACnet gateway is running smoothly. All other statuses indicate a BACnet communication problem.

ⓘ **Note**

Customizing the Device Information

Some properties of the device such as instance number / location / description can be changed using a BACnet Configurator from WAGO. More information is available in the Section ☝ **BACnet Configurator [▸ 42]**!

Reset BACnet Settings

If BACnet parameters have already been changed using a BACnet configurator from WAGO, i.e., if the "Store and Download" function has been carried out and the standard settings have been overwritten, you can reset to the factory default settings. The procedure in web visualization is described below:

Designation	Description
Reset BACnet Settings	Click the **[Reset to factory settings]** button to open the following dialog: **Reset to factory default?** Ok Cancel **[Ok]**: All BACnet parameters (the properties of all configured BACnet objects) are reset to the factory default settings. Click the **[Ok]** button to open the following dialog: **Changes will take effect after gateway reboot!** BACnet parameters were successfully reset to factory default Reboot now Reboot later The message in the middle of the dialog signals whether resetting to the factory default settings was successful. If you get an error message, please contact Viessmann Support under Automation Gateway. The gateway must be restarted for the changes to take effect. 1. Click [**Restart now**] or 2. Click [**Restart later**]. This requires manually restarting the gateway.

Designation	Description
	3. Start the gateway manually by e.g., briefly disconnecting the 24 V power supply and reconnecting.
	[Cancel] cancels the operation.

WAGO BACnet Configurator Help

Clicking the [**?**] button establishes a link to the BACnet Configurator in a new Web browser where you can download it free. More details on the WAGO BACnet Configurator are available in the Section .

7.4.3 Filter

The filter dialog give you the option to filter the data point table based on certain criteria. That means that only the required data points are displayed in the table.

Apply filters to all devices

Note: This function is only visible if the heating system type "Cascaded devices" has been selected! If the switch is activated, the filter settings are applied to all devices or tabs.

The background color of the "Filter" button indicates if a filter has been set. "Orange" indicates that a filter has been set.
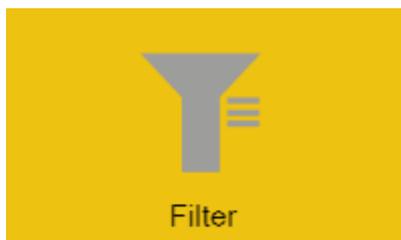
Group Function

The data points can be filtered by group function.

BACnet Object Type

The data points can be filtered by BACnet object type.

Data Point Name

The input field gives you the option to filter by a certain search term in the data point name. The background color of the **[Filter]** button indicates if a filter has been set. "Orange" indicates that a filter has been set.

7.4.4 Show Datapoints

This function checks the availability of all datapoints in the heat generator for the Automation Gateway and displays them in a datapoint table.

To update the datapoints, the following points must be met:
- CAN communication must be successfully initialized.
- The status indicator for CAN communication is green.

> ⓘ **Note**
>
> **Note CAN Status!**
>
> The information above is available in the "CAN-Status" dialog.

After executing the **[Show datapoints]** action successfully, the following dialog opens:
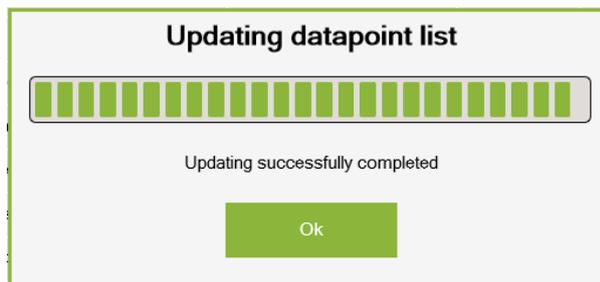
*Figure 14: Figure : Datapoint List*

All datapoints available in the heat generator are displayed in a datapoint table in the tab (Datapoints).

7.4.5 Datapoint Configuration

This section describes configuration options for data points that are described in more detail in the subsections below.
- Description of the data points table
- Selecting and deselecting data points

7.4.5.1 Data Point Table

No.	Selection	Group function	Datapoint name	Tech. reference	Unit	Value	Read/write permissions	BACnet® - Type/-Address
1	☑	Automation gateway	Connection to the heat generator	---	Status	1	ro	BI-1
2	☑	External request	Burner modulation set point	525	Percent	0.0	rw	AV-1
3	☐	External request	Flow temperature set point	1604	°C	0.0	rw	AV-2
4	☑	External request	External demand	921.0	Status	0	rw	MV-1
5	☑	External request	External demand: Status	921.1	Status	0	ro	MI-1
6	☐	External request	Set DHW temperature	1167	°C	0.0	rw	AV-3
7	☑	External request	DHW operating program: Set	538.0	Status	0	rw	MV-2
8	☑	External request	DHW operating program: Actual	538.1	Status	0	ro	MI-2
9	☑	External request	Operating program, heat generator: Set	1605.0	Status	0	rw	MV-3
10	☑	External request	Operating program, heat generator: Actual	1605.1	Status	0	ro	MI-3
11	☑	External request	HC1 set	537.0	Status	0	rw	MV-4
12	☐	External request	HC1 actual	537.1	Status	0	ro	MI-4
13	☐	External request	HC1: Set temp.	1627.0	°C	0.0	rw	AV-4
14	☐	External request	HC2 set	1612.0	Status	0	rw	MV-5
15	☐	External request	HC2 actual	1612.1	Status	0	ro	MI-5
16	☐	External request	HC2: Set temp.	1628.0	°C	0.0	rw	AV-5
17	☐	External request	HC3 set	1613.0	Status	0	rw	MV-6
18	☐	External request	HC3 actual	1613.1	Status	0	ro	MI-6
19	☐	External request	HC3: Set temp.	1629.0	°C	0.0	rw	AV-6
20	☐	External request	HC4 set	1614.0	Status	0	rw	MV-7
21	☐	External request	HC4 actual	1614.1	Status	0	ro	MI-7

Figure 15: Data Point Table

Table 3: Data Point Table

Designation	Description
Select	Manually selects/deselects data points. This function is described in Section 🖱 **Data Point Configuration > Selection [▷ 35]**.
Group Function	Describes the group function of a data point.
Data Point Name	Displays the data point names.
Technical Reference	Indicates the technical identification of the data point in the Viessmann heat generator.
Unit	Displays the physical units of the data points.
Value	Displays the current data point value. **Note: The value range of individual data points can be viewed in the customer data point list, which can be made available by a Viessmann branch office.**
Read and Write Permissions	Read and write permissions are displayed here.
BACnet Type / Address	The BACnet object type is shown here with the associated instance number.

7.4.5.2 Select

No data points are selected by default. If a data point is required on the BMS (BACnet) side, it must be selected in the data point table.

> ### ⓘ Note
>
> **Selecting data points!**
>
> The following points must be met to select/deselect data points:
> 1. The 🖱 **Show data points [▷ 34]** function must be executed successfully.
> 2. There are entries in the data point table.

> ## (i) Note
>
> ### Selection Grayed Out
>
> If a data point is grayed out in the data point table under the "Selection" column ☑ and can no longer be deselected, the WAGO BACnet Configurator has already transferred a configuration to the gateway. You can find more information in the Section "⟲ **WAGO BACnet Configurator-> Change Properties [▶ 43]**". To deselect data points using the BACnet factory settings, refer to Section ⟲ **Reset BACnet to Factory Settings [▶ 47]**.

No.	Selection	Group function	Datapoint name	Tech. reference	Unit	Value	Read/write permissions	BACnet® - Type/-Address
1	☐	Automation gateway	Connection to the heat generator	---	Status	1	ro	BI-3001
2	☑	Device operation	Flow temperature	268.0	°C	0.0	ro	AI-3001
3	☐	Device operation	Flue gas temperature	331.0	°C	128.4	ro	AI-3004
4	☑	Device operation	Primary circuit pump: Speed	381.2	Percent	0	ro	AI-3005
5	☑	Device operation	Thermal output	1190	kW	0.0	ro	AI-3006
6	☑	Device operation	Heat generator modulation set point	524.0	Percent	0.0	ro	AI-3089
7	☐	Device operation	Type of request	2353.0	Status	0	ro	MI-3013
8	☐	Device operation	Temperature demand	2353.1	°C	0.0	ro	AI-3095
9	☑	Device operation	Modulation demand	2353.2	Percent	0	ro	AI-3096
10	☑	Device operation	Primary circuit pump	381.0	Status	0	ro	BI-3014
11	☑	Burner operation	Burner modulation	526	Percent	0.0	ro	AI-3007
12	☐	Burner operation	Burner	364	Status	0	ro	BI-3002

Figure 16: Grayed out buttons

W/AGO

7.4.6 Export Data Point List

This section describes creating the data point list as a CSV file. The Export Data Point List contains all active data points with additional information. The data point list can be used for documentation purposes and for support when creating a project.

ⓘ **Note**

Show Data Points

To generate the export file, the **[Show data points]** function must be executed successfully.

Click the **[Export Data Point List]** button to write all data points with the **"Selection"** property to the CSV file. Then click the **[Download]** button to download the export file from the controller.
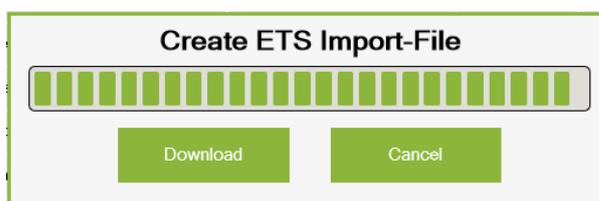
Figure 17: Downloading the CSV File

Click the **[Download]** button to open the following pop-up window:
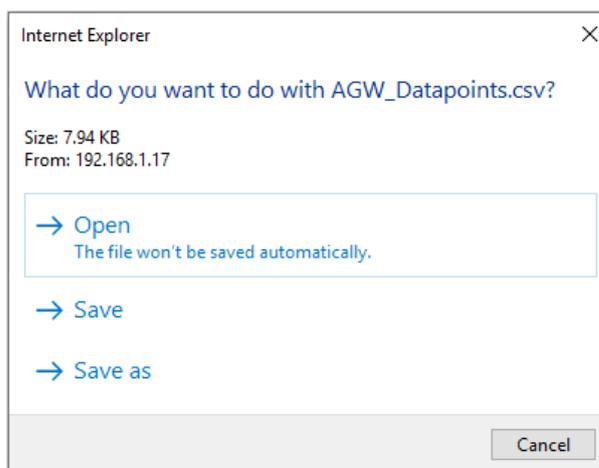
Figure 18: Export Data Point List

ⓘ **Note**

Pop-Up Window

The appearance of the pop-up window can vary depending on the browser type.

> ### ⓘ Note
>
> **You may need to adjust the browser settings!**
>
> If the browser blocks the pop-up window to download the file, you must adjust the browser settings (allow pop-up for this page). Depending on the browser type, the **[Export Data Point List]** function must be executed again.

Selecting "Save As" saves the data point list as a CSV file to the computer locally.

You can open the downloaded file (**AGW_Datapoints.csv**) using any spreadsheet program (e.g., Microsoft Excel). The export file lists all available data points with additional information (group name, data point name, technical reference, read parameter, write parameter and BACnet ID).

	A	B	C	D	E	F	G
1	No.	Group name	Datapoint name	Technical reference	Factor - reading	Factor - writing	ID
2	1	Automation gateway	Connection to the heat generator	---	1	1	BI-1
3	2	External request	Burner modulation set point	525	0,1	10	AV-1
4	3	External request	External demand	921.0	1	1	MV-1
5	4	External request	External demand: Status	921.1	1		MI-1
6	5	External request	DHW operating program: Set	538.0	1	1	MV-2
7	6	External request	DHW operating program: Actual	538.1	1		MI-2
8	7	External request	Operating program, heat generator: Set	1605.0	1	1	MV-3
9	8	External request	Operating program, heat generator: Actual	1605.1	1		MI-3
10	9	External request	HC1 set	537.0	1	1	MV-4

Figure 19: Data Point List as CSV File

BACnet

8.1 General

BACnet (Building Automation and Control Networks) is a network protocol for building automation. BACnet enables data exchange between different, manufacturer-independent devices in a uniform environment. Communication in a BACnet network is based on a client-server principle. The server makes BACnet objects available in the network. The BACnet client enables read or write access to the BACnet objects.

The Automation Gateway BACnet/IP has been implemented on the basis of the WAGO PFC200 Controller 750-8212/0000-0100. The controller corresponds to the BACnet device profile B-BC and supports the BACnet/IP protocol ISO 16484-5: 2012; /ANSI/ ASHRAE Standard 135-2012.

> ### ⓘ Note
>
> **Note further information on the controller!**
>
> You can find more information in the product manual for the PFC200 750-8212/0000-0100 at ⊕ **www.wago.com**.

> ### ⓘ Note
>
> **Note the device-specific BACnet features!**
>
> All supported controller features are specified in the document "BACnet Protocol Implementation Conformance Statement (PICS)". You can download it at ⊕ **https:// www.wago.com/de/d/1887267** – (t07508212_00000100_0en.pdf).

The Automation Gateway BACnet/IP is defined as a server. The building management system (BMS) must be implemented as a BACnet client. The BACnet client can find the gateway via the instance number (BACnet ID) in the network and access the objects of the device. Data is transmitted via the objects from the heat generator to the BMS or, if it is a writable object, from the BMS to the heat generator.

8.2 Object Types

The data points in the Automation Gateway BACnet/IP are defined in the following object types:

Object Type	Abbreviation	Definition	Object Instance Description
Device	DEV	Device object	(Device-specific information and properties of the gateway such as manufacturer, firmware version, etc.).
Analog Input	AI	Analog input	Read Only (ro) - Data point from the heat generator, e.g., an actual temperature value.
Analog Value	AV	Analog value	Read and Write (rw) - For example, a temperature setpoint data point.
Binary Input	BI	Binary input	Read Only (ro) - Data point from the heat generator, e.g., a switched status of a fault detection.
Binary Value	BV	Binary output	Read and Write (rw) - For example, a temperature setpoint data point.
Multistate Input	MI	Multistate input	Read Only (ro) - Data point from the heat generator, e.g., status information of a pump (on, off or not available).
Multistate Value	MV	Multistate output	Read and Write (rw) - For example, an operating mode specification (Normal, Comfort, Eco, etc.)

8.3 Connection to the Heat Generator / Property: Reliability

In the Automation Gateway BACnet/IP, the "Reliability" property describes the status of the heat generator, which is described in the following table.

Connection to Heating Unit	Reliability Status	Present Value
Active	no_fault_detected	Value is updated.
No communication	unreliable_other	Value is note updated.

These properties can be used to determine whether the object instance has established communication with the heat generator. If the gateway loses the connection to the heat generator, the reliability status changes from "no_fault_detected" to "unreliable_other".
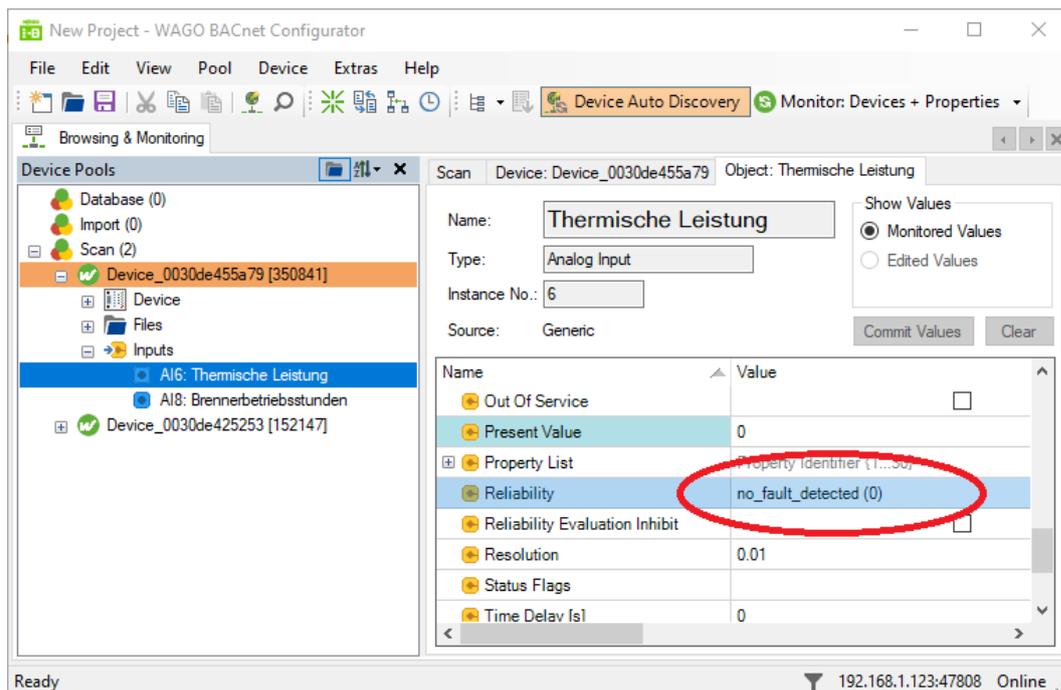
Figure 20: Example – Reliability Property in the WAGO BACnet Configurator

WAGO BACnet Configurator

The WAGO BACnet Configurator is an standalone software that can be used to create WAGO BACnet controllers and special objects (Trend,Scheduler). In addition, you can adjust the properties of the objects and save them permanently on the gateway. Using the export function, for example, you can create an EDE file for project planning purposes. The most important functions of the software are described in the following subsections.

ⓘ **Note**

WAGO BACnet Configurator

More detailed information is described in the manual for the WAGO BACnet Configurator available at ⊕ **www.wago.com**.

9.1 Scan devices

In the WAGO BACnet Configurator, all WAGO BACnet devices detected in the network are displayed under the "Scan" tab. You can trigger a new scan from the **Scan ...** or **Network Rescan** entries in the context menu.
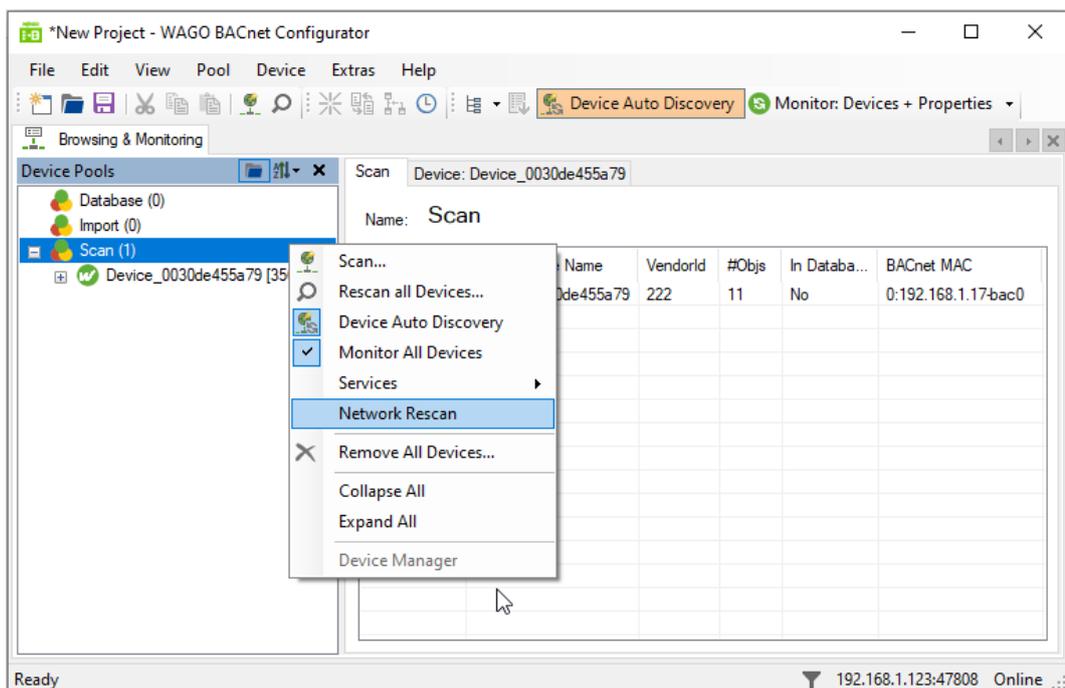
Figure 21: Scan Devices in the WAGO BACnet Configurator

When first delivered, the Automation Gateway BACnet/IP is displayed with the device name "Device_ + (MAC address of the gateway)".

> ⓘ **Note**
>
> **Identify Automation Gateway BACnet in the Network**
>
> If there are several devices on the network, the MAC address can be used to identify the gateway. The MAC address is on the gateway housing.

9.2 Show BACnet Objects

1. Navigate to the displayed device in the "Device Pool" window.

2. Expand the tree structure below the device to see further device information.

3. Click one of the objects in the left window.

   ⇨ The associated properties of the object are displayed in the right window. The figure shows the properties of the MI-1 object (e.g., Present Value / State Text).
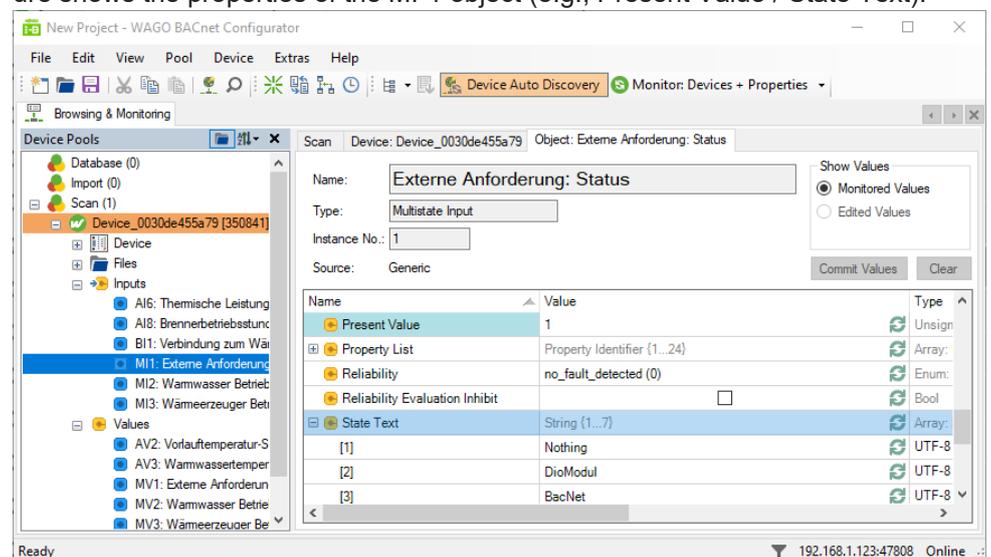
The table below describes the individual subcategories of the device:

Subcategory	Description
Device	The device object of the gateway is displayed.
Files	All internal BACnet files are listed (not relevant for the gateway).
Inputs	All input objects (BI, AI, MI) of the gateway are listed.
Values	All value objects (BV, AV, MV) of the gateway are listed.

9.3 Change Properties

The BACnet Configurator can be used to change certain properties of an object. The modified configuration is then transferred to the gateway and saved in a non-volatile manner. The individual steps are described below.

✓ BACnet objects of the gateway must be visible in the configurator.

1. To do so, select at least one data point in the data point table in the web visualization.

2. Right-click on the device and then select **[Add To Database]**.

    ⇨ The current configuration is added to the database and the "Scan" tab for further processing.
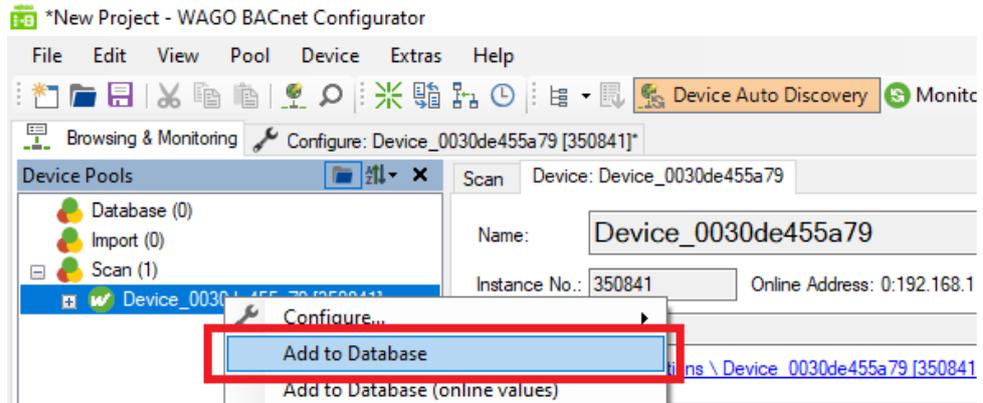
3. Switch to the "Database" tab and right-click on the "Device".

4. Select **[Configure]**.
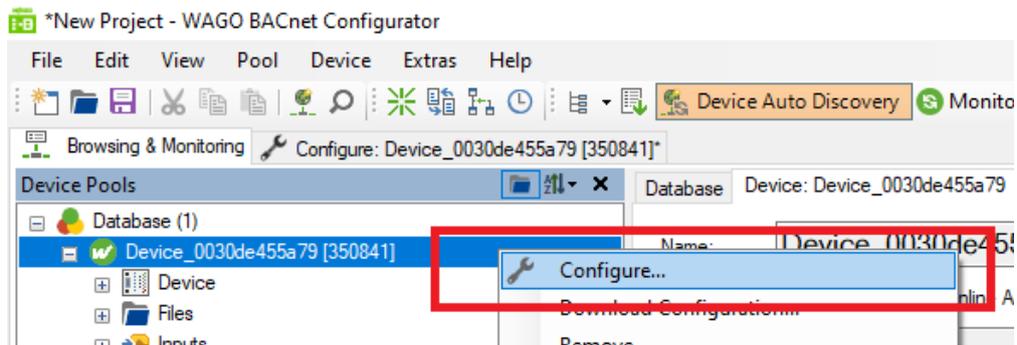
5. Click one of the objects and adjust the configuration on the right in the window.

    ⇨ Properties can be changed, removed or new ones added.

6. Right-click on the object and select **[Add Property]** to add more properties.
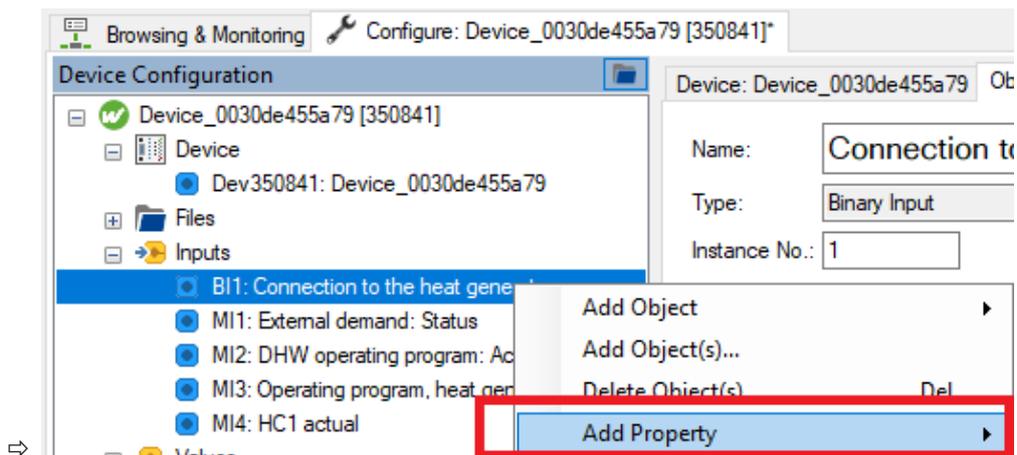
7. In the configuration window, right-click on [**Store and Download**to save changes and transfer to the gateway.

    ⇨ The following dialog appears:
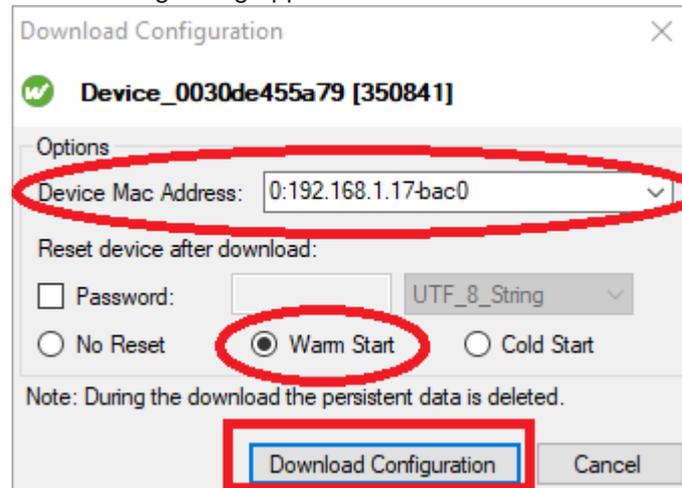
8. Select the gateway.

9. Select "Warm Start".

    ⇨ The changes only take effect after restarting the gateway.

10. Save the project settings before restarting (see Section ↰ **Data Backup -> Local [▸ 19]**).

11. The click the [**Download Configuration**] button to transfer the configuration to the device.

ⓘ **Note**

The complete configuration of all BACnet objects is saved!

Even if only a single property of an object has been changed, the complete configuration of all BACnet objects is always saved on the gateway! As soon as a configuration has been transferred to the gateway, all previously selected data points are highlighted in gray after restarting the gateway and can no longer be deselected. The data points can only be deselected again by resetting the BACnet settings to the factory settings. More information is available in the Section ↰ **Reset BACnet to Factory Settings [▸ 29]**.

ⓘ **Note**

Only select data points for which properties should be changed!

To avoid that many data points can no longer be deselected after the configuration has been transferred, note the following: Only select the data points (BACnet objects) for which the properties are to be changed!
**Example**: Do not select any data points in the web visualization if only the device ID of the gateway is to be changed, since in this case only the properties of the device object are changed.

9.4 Change Device ID

The device ID (Instance No.) of the gateway can be adjusted in the same way, as described in Section ⚙ **Change Properties [▶ 43]**. The device object (Dev + Instance No.) must then be selected and the new instance number (Instance No.) entered and transferred to the gateway using [**Store and Download**], the configuration transferred to the gateway.

✓ BACnet objects of the gateway must be visible in the configurator.

1. To do so, select at least one data point in the data point table in the web visualization.

2. Right-click on the device and then select [**Add To Database**].

   ⇨ The current configuration is added to the database and the "Scan" tab for further processing.
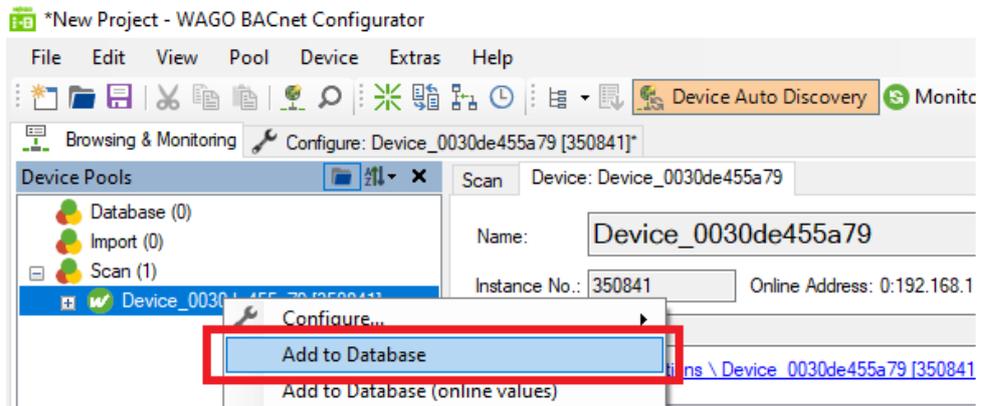
3. Select [**Configure**].
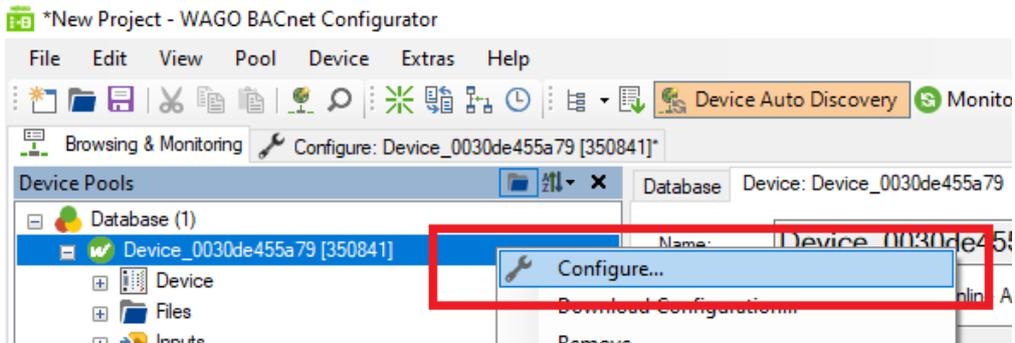
4. Select the device in the "Device Pools" window (Device + Instance No.).

5. Enter the new instance number in the "Instance No." field.
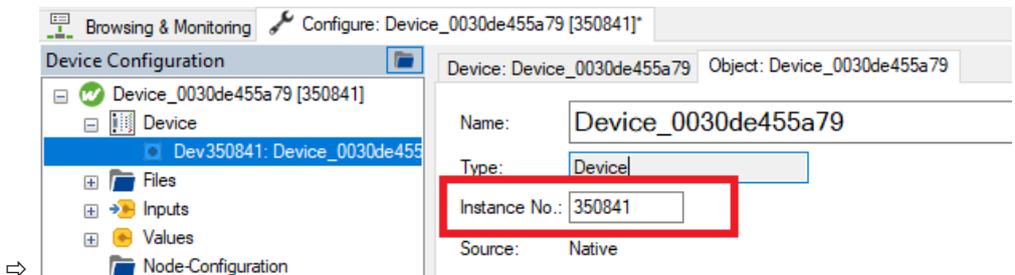
6. Use [**Store and Download**] to transfer the change to the gateway.

   ⇨ After the restart, the gateway appears with the new instance number in the "Scan" tab.

> **ⓘ Note**
>
> **The instance number must be unique!**
>
> For the communication with the BACnet gateway to work properly, the instance number must be unique in the shared BACnet network!

9.5 Resetting BACnet to Factory Settings

Once a configuration with data point objects has been transferred to the gateway using the WAGO BACnet Configurator, the object's default settings are overwritten. This means that the loaded configuration has priority and therefore the data points can no longer be deselected in the web visualization. The affected data points are highlighted in gray in the "Selection" column of the data point table.

Another device scan may be necessary due to a different type of heat generator or a new software version. If you click the [**Show data points**] button, although a configuration has already been transferred to the gateway using the WAGO BACnet Configurator, you must note the following:

Note: Data points that are no longer available after a device scan (because the heat generator no longer supports them) still exist in the BACnet configuration file!

> **ⓘ Note**
>
> **Reset the BACnet to the factory default settings!**
>
> Before updating the data points again, reset the BACnet to the factory default settings to avoid negative effects as described. This is described in ⌖ **BACnet Settings -> Reset BACnet settings [▷ 29]**.

Multi-Boiler Mode

Multi-boiler mode has advantages when it comes to criteria such as "high power require-ment" and "high reliability". The master device takes over control and thus controls the slave devices. If the power requirement increases, then several heat generators take over the heat supply at the same time. In addition, the cascade increases reliability, since if one heat generator fails, another device will continue to generate heat (increased opera-tional reliability). Additional information on the topic is available at ⊕ **Automation Gate-way**.

Application Type Selection

The gateway can be switched to multi-boiler mode under ⊕ **Project Settings > Applica-tion Type [▶ 21]**. In multi-boiler mode, the gateway supports communication between up to eight heat generators at the same time. The connection status of the connected de-vices can be check under CAN Status.

10.1 CAN Status - Multi-Boiler Mode

The "CAN Communication" area in the "CAN Status" dialog differs from single-unit mode in multi-boiler mode. As shown in the figure, the connection status of the connected heat generators can be read. For more details, see Section ⊕ **CAN Status [▶ 27]**.
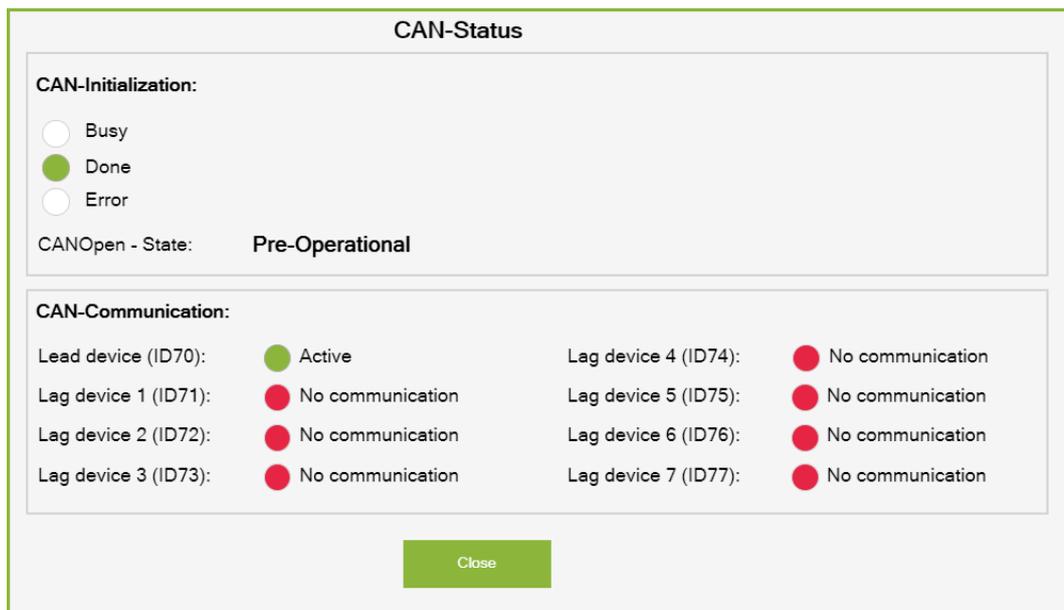
Figure 22: CAN Status in Multi-Boiler Mode

> ⓘ **Note**
>
> **Setting the Device Type on the Heat Generator**
>
> To display the connection status of the connected heat generators correctly, you must first configure each heat generator in the cascade (master device / slave device). You can find more information in the start-up manual for the heat generator in the Section ⊕ **Automation Gateway**.

WAGO

Relationship between the device IDs of the heat generator and the designations in the gateway:

Master device	Slave Device 1 .. 7
Device ID 70	Device ID 71-77

The heat generator must be assigned to the above device ID area to ensure communication with the gateway.

10.2 Data Point Table - Multi-Boiler Mode

The heat generators are mapped in tabs in the data point table in multi-boiler operation. By switching the tabs, the data points of the selected device are displayed in a table. A maximum of eight heat generators can be linked in multi-boiler operation (max. 1 master unit and 7 slave units). Regardless of the number of heat generators connected to the gateway, all tabs are always displayed. The current connection status to the heat generator is available at ⟨🖰 **CAN Status [▷ 27]**. Further details on selecting data points and communication between the building control system and the heat generator is available in Section ⟨🖰 **Data Point Configuration [▷ 34]**.

Figure 23: Data Points - Cascading

> ⓘ **Note**

Number of Data Points

Depending on the type of heat generator, the number of data points can differ from device to device. Which data points a heat generator supports is available in the respective device manual, see 🌐 **Automation Gateway**.

10.3 Addressing Datapoints

For each BACnet object type, certain ranges have been defined in the gateway:

Object Type	Address Range
Analog Input	AI-1…7999
Analog Value	AV-1…7999
Binary Input	BI-1…7999
Binary Value	BV-1…7999
Multistate Input	MI-1…7999
Multistate Value	MV-1…7999

If the gateway is used as a single device, the address range of the object instances of all object types is in the range of "1 ... 1000". If you switch to "Cascaded devices," the address range of the object instances of the master device is in the range of "1 ... 1000", The address range of the object instances for the slave devices starts with an offset of "+ 1000" depending on the number on the registers.

Example:

Slave device 1: 1001 ... 2000

Slave device 2: 2001 ... 3000

Quick Start Guide

Perform the following steps:

1. Check the CAN initialization, see Section 🖰 **CAN Status [▶ 27]**.

2. Check the CAN communication with the heat generator, see Section 🖰 **CAN Status [▶ 27]**.

3. Check that there are no error messages in the alarm banner. If necessary, remove them first, see also Diagnostics > Alarm Banner Messages.

4. Execute the "Show data points" function, see Section 🖰 **Data Points > Show Data Points [▶ 34]**.

5. Enable the required data points on the BACnet page, see Section 🖰 **Data Points > Data Point Configuration > Selection [▶ 35]**.

6. Save the project settings, see Section 🖰 **General Buttons > Data Backup [▶ 18]**.

Diagnostic

For diagnostic purposes, the LED display elements of the WAGO hardware and the error messages in the Automation Gateway's alarm banner are explained below.

ⓘ **Note**

Further information

Detailed documentation on the WAGO hardware can be found in the corresponding manuals on the 🌐 **WAGO Homepage.**

12.1 PFC200 Indicators (750-8212/000-100)

The PFC200 Controller (750-8212/0000-0100) has the following status LEDs:
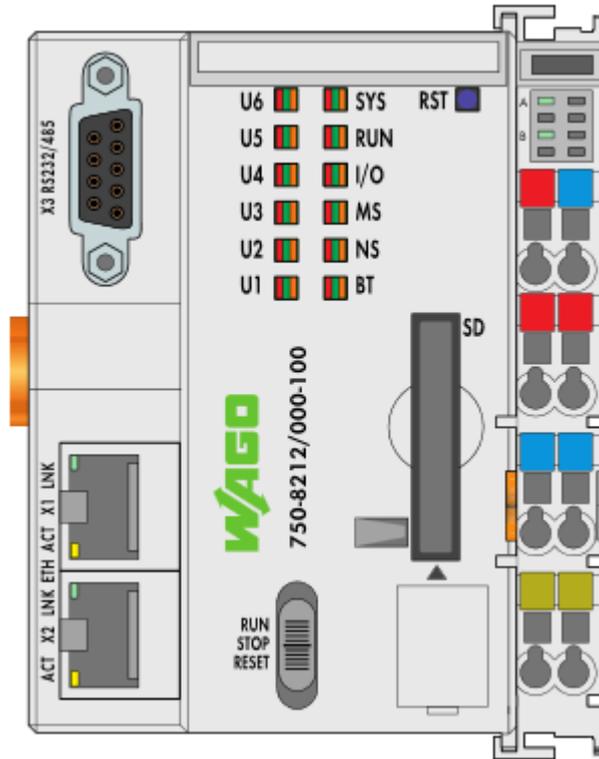
Figure 24: PFC200 Status LEDs

Table 4: PFC200 Indicators (750-8212/0000-0100)

Status LED	Colors
SYS	Red/Green/Orange/Off
RUN	Red/Green/Orange/Off
I/O	Red/Green/Orange/Off
MS	Red/Green/Orange/Off
NS	Red/Green/Orange/Off
BT	Red/Green/Orange/Off
U1	Red/Green/Orange/Off
U2-U6	Red/Green/Orange/Off

The next subsection describes the individual status LEDs of the PFC200 in detail.

12.1.1 "SYS" Diagnostic LED

Status	Explanation	Remedy
Green	Ready to operate - System start completed without errors.	---
Yellow	Device is in startup/boot process and the RST button is not pressed.	---

12.1.2 "RUN" Diagnostic LED

Status	Explanation	Remedy
Green	Applications loaded and all in the "RUN" status	--
Red	Applications loaded and all in the "STOP" status	Set the mode selector switch to "RUN" to start the application.
Red, goes out briefly	Warm start reset completed	---

12.1.3 "I/O" Diagnostic LED

Status	Explanation	Remedy
Green	Data cycle on the local bus, normal operating status.	---
Orange flashing	Startup phase, the local bus is being initialized. The startup phase is indicated by rapid flashing for about 1 ... 2 seconds.	Wait until initialization has been completed.
Red	A hardware fault is present.	Please contact Viessmann Technical Support at ⚙ **Automation-Gateway**. It must be checked which module caused the error.
Red, flashing (2 Hz)	An error which may be able to be eliminated is present.	First, try to eliminate the error by switching the device (power supply) off and then back on. Check the entire node structure for any errors. If you cannot eliminate the error, contact Viessmann Support at ⚙ **Automation-Gateway**
Red flashing (flashing sequence)	There is a local bus error.	Please contact Viessmann Support at ⚙ **Automation-Gateway.**
Off	Program was not fully loaded.	Restart the device. If you cannot eliminate the error, contact Viessmann Support at ⚙ **Automation-Gateway.**

12.1.4 "MS" Diagnostic LED

Status	Explanation	Remedy
Off	No error	---
Red flashing (flashing sequence)	Error	Please contact Viessmann Support at ⚙ **Automation-Gateway.**

12.1.5 "NS" Diagnostic LED

The "NS" diagnostic LED has no function.

12.1.6 "BT" Diagnostic LED

Status	Explanation	Corrective Action
Green	BACnet Fieldbus Status "OK". Network initialization completed, BACnet stack started. Ready for fieldbus data traffic.	---
Green flashing	Initialization of the BACnet stack	Wait until initialization has been completed.
Red	The system indicates an unrecoverable error.	1. Restart the controller by turning the power supply off and on again. 2. Should the error persist, please contact Viessmann Support under ⊕ **Automation Gateway.**
Red, flashing	Error during initialization of the BACnet stack. Incorrect configuration.	Please contact Viessmann Support under ⊕ **Automation Gateway**.
Off	No power is available for the system	1. Check the power supply.
Yellow	Error	1. Check the BACnet configuration with the included BACnet objects. 2. Should the error persist, please contact Viessmann Support under ⊕ **Automation Gateway.**

12.1.7 "U1" Diagnostic LED

Status	Explanation	Corrective Action
Green	The connection to the heat generator is active.	---
Red	The CAN interface has the status "Bus Off" (short circuit or other major fault).	Check CAN connection (plug, line, terminating resistor, heat generator ON). If you cannot eliminate the error, please contact Viessmann Support at ⊕ **Automation Gateway.**
Other	Error	Please contact Viessmann Support under ⊕ **Automation Gateway**.

12.1.8 "U2-U6" Diagnostic LED

The "U2-U6" diagnostic LEDs have no function.

12.2 WAGO 750-658 CAN Module
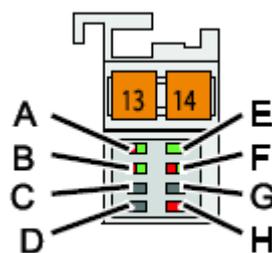
Figure 25: CAN Module 750-658 Diagnostic LED

Table 5: CAN Module 750-658 Diagnostic LED

LED	Designation	Status	Explanation
A	CAN Status	Green	CAN bus properly initialized.
			Error on the CAN bus.
		Red	CAN bus not initialized.
B	K-Bus RUN	Green	Local bus data transfer possible.
		Off	Local bus data transfer not possible.
C	Not assigned	---	---
D	Not assigned	---	---
E	CAN-Rx	Green	CAN telegram received.
		Red	CAN telegram could not be received.
F	CAN-Tx	Green	CAN telegram sent.
		Red	CAN telegram could not be sent.
G	Not assigned	---	---
H	Int. error	Red	Internal error: • Buffer overflow • Error in mailbox communication • Parameter channel error • Register communication error

12.3 Alarm Banner Messages

The following error messages can be displayed in the alarm banner.

Table 6: Alarm Banner Messages

Weighting	Notification	Description	Corrective Action
Error	CAN Module -> CAN connection error	Connection problem to the CAN bus.	Heat generator must be ON. Check interconnecting cable to the heat generator.
Error	CAN Module -> Initialization fail	An error occurred during the CAN-Bus initialization phase.	Check if the heat generator supports the Automation Gateway. You can find more information in the document "Supported Heat Generators" at ⊕ **Automation Gateway**.
Error	CAN Module -> Show data points failed	Initialization of the CAN object for the heat generator has failed.	Check if the heat generator is ON and connect it to the gateway.
Error	BACnet -> error message "Status of the BACnet LED (BT)" of the PFC200 Controller.	BACnet is in the error state.	The error message in the alarm banner describes the cause.

You can find a detailed description of the alarm banner in Section „⊕ **Data Points > Alarm Banners [▷ 25]**".

WAGO

12.4 Heat Generator Error Messages

The Automation Gateway BACnet/IP supports the list of the last ten error messages as well as a collective fault for each connected heat generator for fault diagnosis.

12.4.1 Last Ten Error Messages

The last ten error messages are defined as analog input objects and transmit the number of the respective error message in the "Present Value" property. The error number can then be used to determine the cause. You can refer to the document "Error and Maintenance Messages.pdf" from Viessmann branch where the error message is described. The AI object "Error number 1" always contains the last occurring error message and the AI object "Error number 2" contains the penultimate error message, etc. If a new error message occurs, all previously active error messages are shifted by one register position. The content of the "Present Value" of "Error number 1" would be copied to the register object of "Error number 2". If there are more error numbers, they are also shifted by one position. If all AI objects of the error numbers are already occupied and a new error message occurs on the heat generator, "Error number 10" is deleted from the list and replaced by "Error number 9". Depending on the type of application, the last ten error numbers are on the following BACnet IDs:

Application Type	Device Type	BACnet ID's for Error Number 1 ... 10
Single device	-	AI-14 ... AI-23
Multi-device	Master device	AI-14 ... AI-23
Multi-device	Slave device 1	AI-1014 ... AI-1023
...	...	...
Multi-device	Slave device 1	AI-7014 ... AI-7023

> ### ⓘ Note
>
> **Notification Class Object**
>
> By delaying the error messages in the list of the last ten error numbers, assignment of a "Notification Class" to the above AI objects does not make sense.

12.4.2 Collective Fault

The collective fault signals a fault on the heat generator and is defined as an analog input object. If the collective fault is selected in the data point table, the gateway creates a "Notification Class Object" for each collective fault of the Viessmann device. The "Notification Class" property of the collective fault object is automatically configured on the associated NC object. If there is a collective fault, the NC object reports the event to a recipient (BMS) using intrinsic reporting.

Application Type	Device Type	BACnet ID of the Collective Fault	Notification Class Object
Single device	-	AI-120	NC10
Multi-device	Master device	AI-120	NC10
Multi-device	Slave device 1	AI-1120	NC11
...	...	...	...
Multi-device	Slave device 1	AI-7120	NC17

If there are already entries in the list of the last ten error messages, the "Present Value" of the collective fault object shows the number of active error numbers. In addition, the "Event Message Text" signals which error numbers are active. An "Event Message Text" with 10 active error numbers could look like this:

Error Message Viessmann Device: **1=7459 | 2=5459 | 3=7984 | 4=2341 | 5=5644 | 6=7543 | 7=3452 | 8=9832 | 9=5321 | 10=4632**

The number in front of the equal sign is the index of the error number, then the error number is displayed. As soon as a change is identified in the last ten error messages (e.g., a new error), a new event is generated on the NC object. The figure below shows a collective fault event in an event notification table. The error text of the collective fault is shown in the "Message" column.
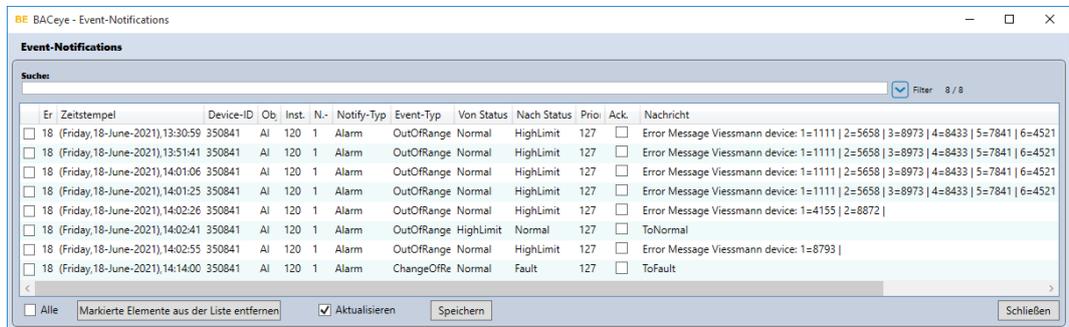
Figure 26: Collective Fault

Setup
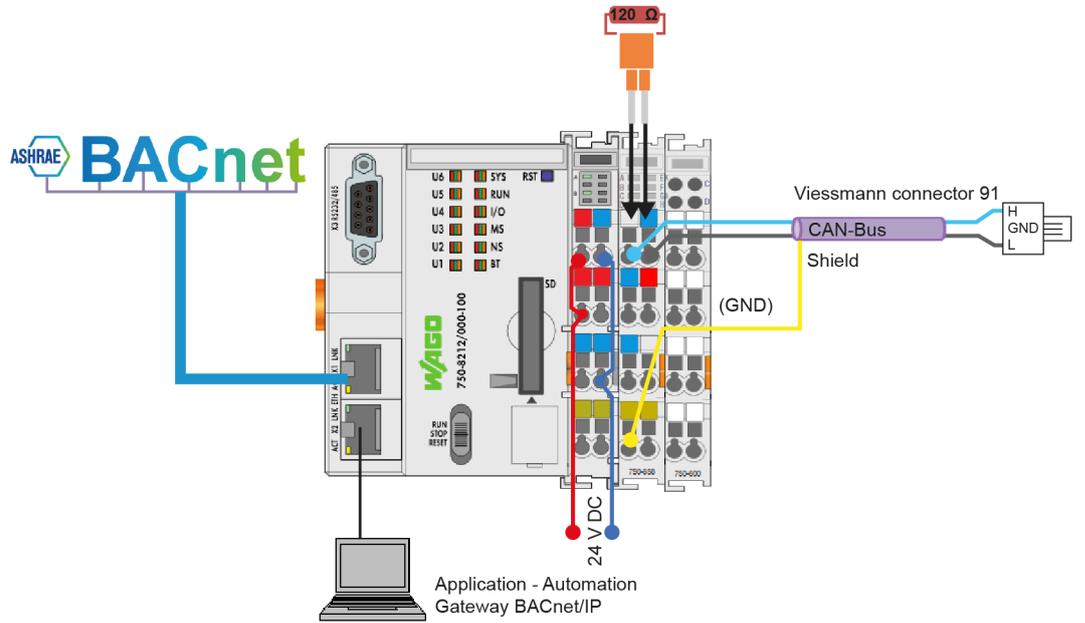
Figure 27: Automation Gateway BACnet/IP Connection Diagram

Appendix

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