

Translation of original German version of operating instructions for operators.

Read and follow all instructions and safety instructions.
All errors and omissions excepted.

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1 General information

1.1 Functional description

The Fröling Visualisation 4 is used to configure, control, and monitor heating systems provided by Fröling. The application is installed locally on a PC and connects to the boiler control system, using either the serial interface with a null modem cable or using the network interface with a standard network cable.

1.2 System requirements

Minimum system requirements:

- Processor: 1 GHz
- RAM: 4 GB
- Hard disk memory: 1 GB
- Screen: 1360x768 (16:9 or 16:10)

2 Installation/Removal

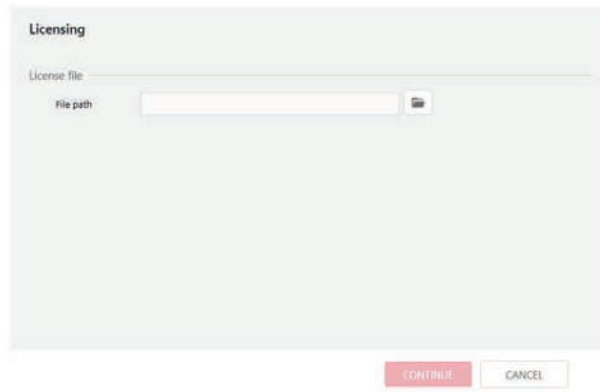
To install the application, start the setup wizard (*.msi) and choose the installation path. It may be necessary to enter an administrator password depending on the user's authorisation. User settings of a previously installed version are not affected!

The application can be uninstalled using the setup wizard or the control panel.

2.1 Software licence

In order to run the software, a valid licence is required. The licence is checked every time the application is used and once a day.

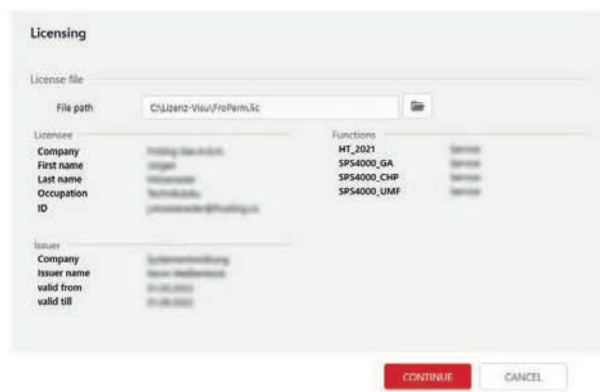
If a licence is invalid or not available, the selection dialogue is displayed:



- Click the folder symbol and navigate to the licence file (*.lic) in the file selection dialogue box
- Select and apply the file

Note: If a licence file is not yet available, the software can be tested in demo mode for a period of 10 days from the time of installation. However, only a limited range of functions is available in this mode.

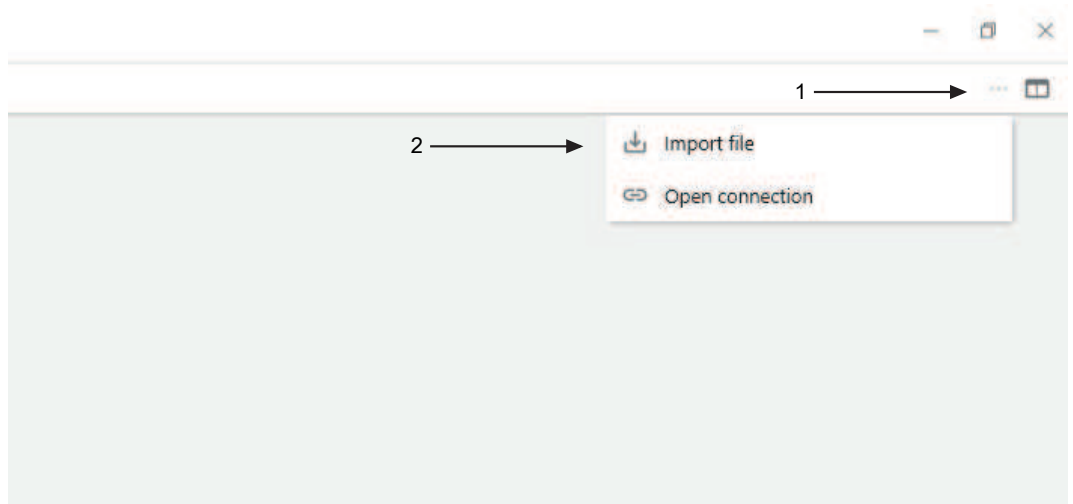
If a valid licence file is linked, the corresponding licence information is displayed:



3 Establishing connection to the boiler controller

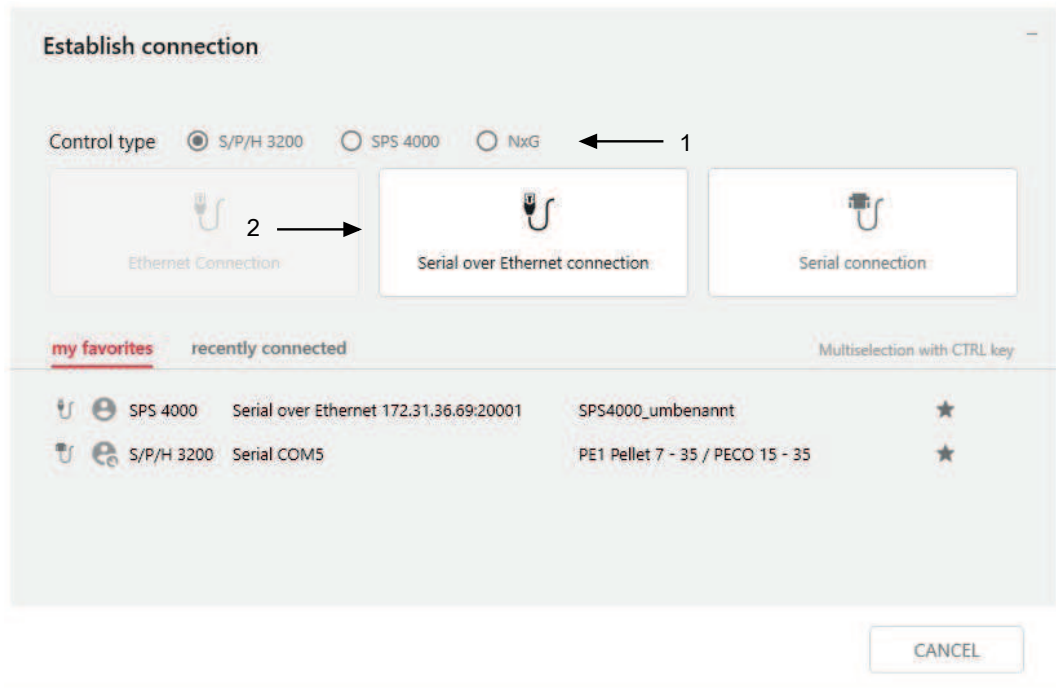


- ❑ Click `Establish connection`



This dialogue can also be opened using the tab menu on the right-hand side.

- ❑ Click the ellipsis icon
- ❑ Go to the context menu and click `Establish connection`



The connection wizard window opens. When specifying the required connection parameters, new installations can be interconnected. If selecting `Recently connected` the last connections are listed in chronological order.

In order to connect a system for the first time, some parameters must be entered.

- Select control type (1)
- Determine the type of connection
 - ↳ The boiler controller used defines the connection modes displayed.

3.1 Type of connection

There are three ways to establish the connection:

- **Ethernet:** Connection is established via the network. In this mode, the REST API is used (currently only supported by the NxG control type).
- **Serial to Ethernet:** Connection is established via a network. Here, the serial communication protocol is used.
- **Serial connection:** Connection is established via the serial interface or a USB serial adapter. Here, the serial communication protocol is used.

3.1.1 Ethernet / serial to Ethernet

In order to connect using an Ethernet network, both the boiler and computer must be connected to the visualisation system and network.

The screenshot shows a dialog box titled "Establish connection" with a sub-section "Ethernet connection". There are two radio buttons: "Ethernet network" (selected) and "Direct ethernet connection". Under "Ethernet network", there are two input fields: "IP address or hostname" with the placeholder "IP ADDRESS OF THE SYSTEM" and "Port" with the value "8080". At the bottom, there are three buttons: "BACK" (disabled), "CONTINUE" (active), and "CANCEL".

- Enter the IP address or host name
- Enter the network's port
- Confirm the input and press Next
 - ↳ Login is initiated

Note: If the Next button remains greyed out, the entries must be verified.

3.1.2 Ethernet / serial to Ethernet (direct connection with DHCP)

This type of connection is highly recommended if the target system is connected via a network cable and the system's network configuration is set to "DHCP" or "Retrieve IP address automatically".

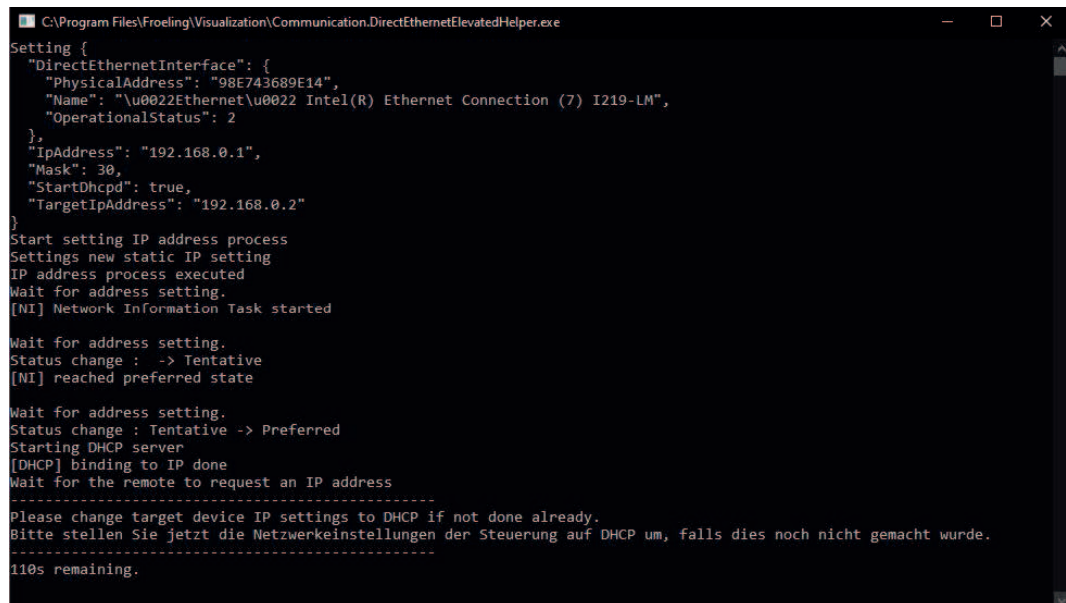
The screenshot shows a dialog box titled "Establish connection" with a sub-section "Ethernet connection". There are two radio buttons: "Ethernet network" (disabled) and "Direct ethernet connection" (selected). Under "Direct ethernet connection", there are three fields: "Interface" (a dropdown menu showing "Ethernet Intel(R) 82579LM Gigabit Network Connection"), "Port" (input field with "8080"), and "Mode" (a dropdown menu showing "DHCP"). At the bottom, there are three buttons: "BACK" (disabled), "CONTINUE" (active), and "CANCEL".

- Select the interface used on the PC
- Enter the network port of the system
- Set the mode to DHCP
- Use a network cable to connect the system and PC
- Confirm the input and press Next

A local DHCP server is started on the notebook and an IP address is assigned to the target system. Additional DHCP servers in an existing network create sources of interference. Therefore, the right choice of interface is particularly important.

Following the authentication dialogue, a configuration tool is launched. An administrative password may be required depending on the user's authorisation level.

A control window similar to the illustration shown below appears:



```

C:\Program Files\Froeling\Visualization\Communication.DirectEthernetElevatedHelper.exe
Setting {
  "DirectEthernetInterface": {
    "PhysicalAddress": "98E743689E14",
    "Name": "\u0022Ethernet\u0022 Intel(R) Ethernet Connection (7) I219-LM",
    "OperationalStatus": 2
  },
  "IpAddress": "192.168.0.1",
  "Mask": 30,
  "StartDhcpd": true,
  "TargetIpAddress": "192.168.0.2"
}
Start setting IP address process
Settings new static IP setting
IP address process executed
Wait for address setting.
[NI] Network Information Task started

Wait for address setting.
Status change : -> Tentative
[NI] reached preferred state

Wait for address setting.
Status change : Tentative -> Preferred
Starting DHCP server
[DHCP] binding to IP done
wait for the remote to request an IP address
-----
Please change target device IP settings to DHCP if not done already.
Bitte stellen Sie jetzt die Netzwerkeinstellungen der Steuerung auf DHCP um, falls dies noch nicht gemacht wurde.
-----
110s remaining.

```

The network settings of the system must be set to DHCP or Obtain IP address automatically. This setting must be entered the latest after the output of “Please change target device IP setting to DHCP, if not done already”.

From this point on, the configuration tool waits 120 seconds for an IP address request from a device. An attempt is made to check the availability of the device by pinging the device.

Subsequently, Visualisation 4 connects to the system.

Note: Requesting the IP address may take some time. If the mode is only changed at the output of “Please change target device IP setting to DHCP, if not done already”, an IP address should be requested within a few seconds.

If this process fails, the question is raised whether the network interface should be reset to DHCP. The same tool is started for resetting.

If the statement “Please change target device IP setting to DHCP, if not done already” is not issued, the network cable may not be connected.

3.1.3 Ethernet / serial to Ethernet (direct connection with static IP)

In this mode, a static IP is set. The requirement for the direct connection with a static IP is that a static IP is also configured on the target system.

- Select the `interface` used on the PC
- Enter the `network port` of the system
- Set the `mode` to IP
- Enter the `IP address` of the system
- Enter the `subnet mask` of the system
- Confirm the input and press `Next`

Following the authentication dialogue, a configuration tool is launched. An administrative password may be required depending on the user's authorisation level.

The configuration tool attempts to connect to the system and Visualisation 4 connects to the system.

If this process fails, the question is raised whether the network interface should be reset to DHCP. The same tool is started for resetting.

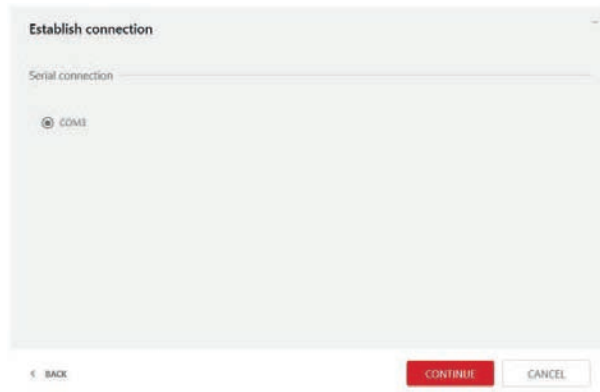
3.1.4 Ethernet / serial to Ethernet (resetting the direct connection)

If an Ethernet direct connection (IP or DHCP) is closed, the Visualisation prompts the user whether the network configuration of the network interface used should be reset to DHCP client. This dialogue also appears if errors occurred during the configuration (e.g., because the system was not accessible after the configuration of the direct connection).

If this dialogue is confirmed, the configuration tool is restarted. An administrator's password may be required if necessary.

3.1.5 Serial connection

The dialogue window lists all available COM ports.



- Use a serial cable to connect the system and PC
- Select the COM port of the PC used to connect the system
- Confirm the input and press `Next`

Visualisation 4 automatically carries out all further settings.

Note: If there are problems with the connection and the USB-serial adapter used, remove the latter and connect it again. Clicking `Cancel` and reopening the dialogue box updates the list.

3.2 Type of login

There are a total of four modes for entering the authentication parameters:

- Login with user code
- Login with user and password
- Login with licence
- Login with programme licence

The dialogue box lists the available modes. The connected system determines the number of available modes. Only modes supported by the system are displayed.

After the login data has been entered, the connection is established and the user is logged in. The dialogue box displays the progress and any errors that may occur (e.g., system not accessible, login data invalid).

If the login data is invalid, it is possible to connect “without logging in”. For this purpose, Visualisation 4 uses a login of the lowest level of authorisation.

3.2.1 Login with user code

The screenshot shows an 'Authentication' dialog box with the following elements:

- A radio button labeled 'Usercode' is selected.
- A text input field labeled 'Usercode' is present.
- Two unchecked checkboxes: 'Remember login' and 'Establish further connection'.
- At the bottom, there are three buttons: '< BACK', 'LOGIN' (highlighted in red), and 'CANCEL'.

- Enter the User code
- Press Log in to confirm the selection

If marking the appropriate check boxes, the login data can be saved and another connection can be established. When establishing a connection using *Favourites* or *Recently connected*, any saved data is used.

3.2.2 Login with user and password

The screenshot shows an 'Authentication' dialog box with the following elements:

- A radio button labeled 'Use program license' is selected.
- Two other radio buttons: 'License' and 'User'.
- Input fields for 'License', 'Username', and 'Password'.
- Two unchecked checkboxes: 'Remember login' and 'Establish further connection'.
- At the bottom, there are three buttons: '< BACK', 'LOGIN' (highlighted in red), and 'CANCEL'.

- Select User
- Enter the User name
- Enter the User password
- Press Log in to confirm the selection

The user name must be case sensitive.

If marking the appropriate check boxes, the login data can be saved and another connection can be established. When establishing a connection using *Favourites* or *Recently connected*, any saved data is used.

3.2.3 Login with licence/ programme licence

The options for logging in with a licence are only displayed in systems that support this feature.

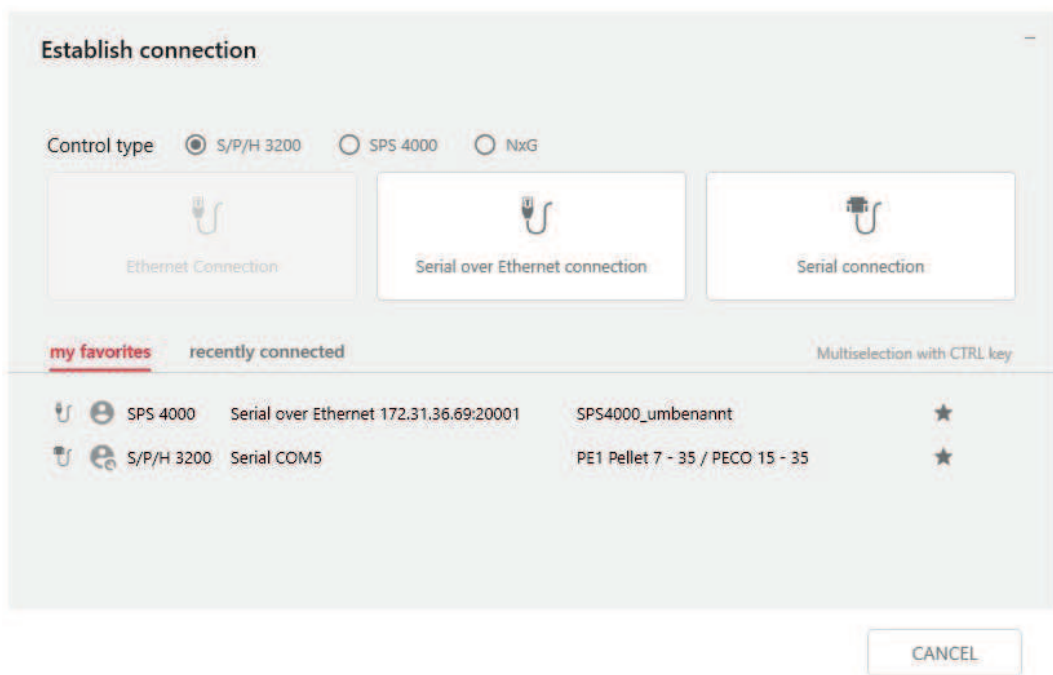
If the option `Licence` is selected, any licence can be entered. If the option `Use programme licence` is selected, Visualisation 4 uses the software licence in order to log in. If the login licence and software licence are identical, the path to the licence file does not have to be specified again.

If marking the appropriate check boxes, the login data can be saved and another connection can be established. When establishing a connection using `Favourites` or `Recently connected`, any saved data is used.

Note: When used in conjunction with the `Licence` option and `Save login data`, the path to the file is saved. The licence file must have been placed in the same location in order to log in using `Favourites` or `Recently connected`.

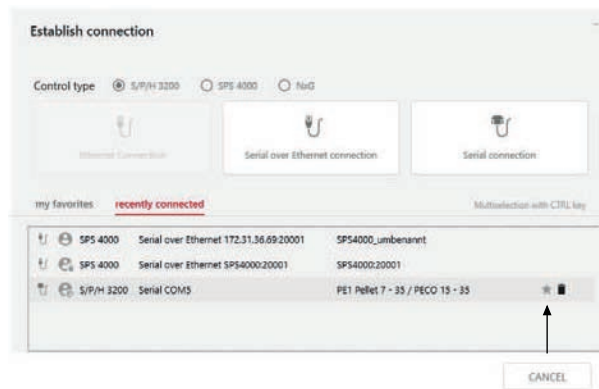
The licence must be valid. If a licence other than the programme licence is used during login, additional functions can be activated. When closing the connection or if the user logs off, these functions are deactivated again.

3.3 Connection via favourites



Whenever a connection is established, this action is entered into the history file. If the function `Save login data` is activated, `Favourites` and previous connections are listed in the connection wizard. In the `Recently connected` tab all systems are sorted by the time they were last used. The last used entry is at the top of the list.

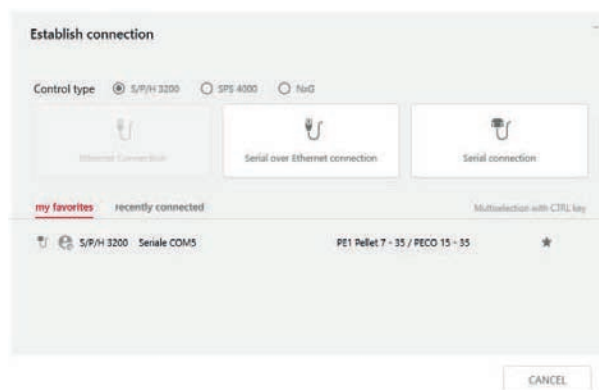
Note: A maximum of 30 entries from the history are retained (favourites excluded). When adding more entries, the oldest connections are deleted.



The tab *My Favourites* contains entries selected by the user. The last used entry is at the top of the list.

Adding a connection to the favourites:

- Position the mouse pointer on the desired entry
 - ↳ The star and recycle bin icons appear
- Click the star icon
 - ↳ The star's colour changes to black and the entry is set as a favourite.

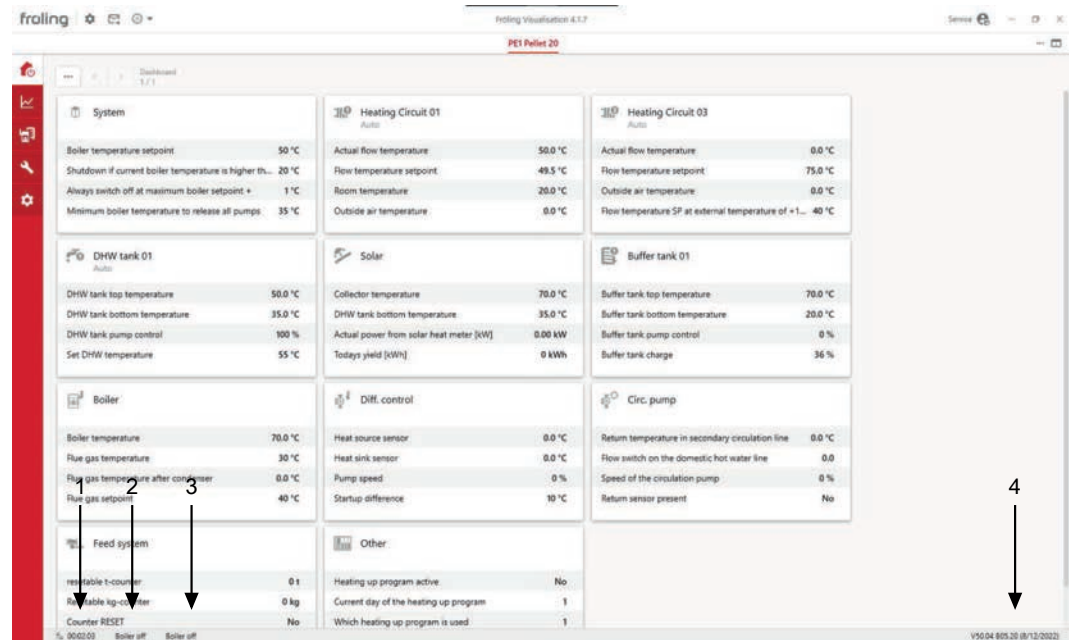


The entry is now listed under *My Favourites*.

4 Operation

4.1 Status bar at the bottom of the screen

The status bar at the bottom of the screen always refers to a specific tab. A tab can be a connection or an imported file.

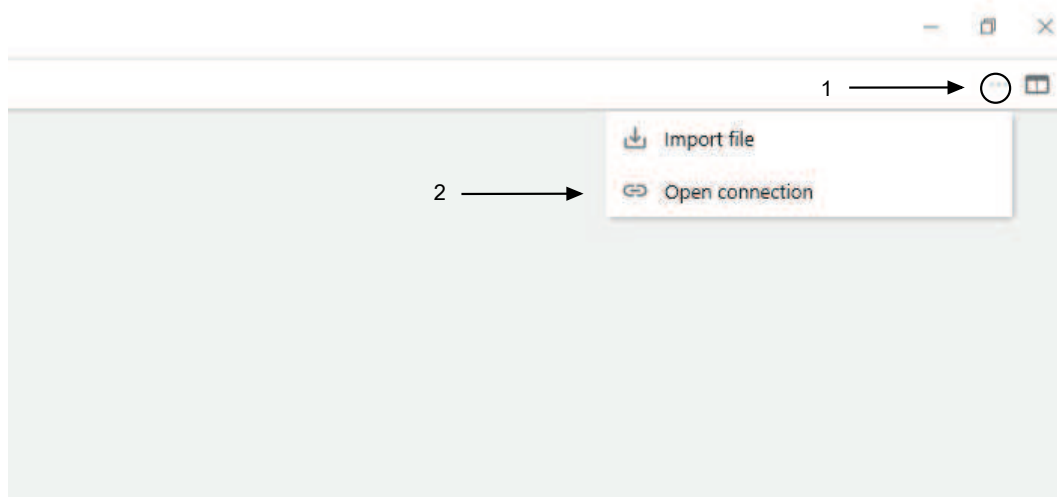


For all connections, the following information is displayed in the status bar:

1. Displays the runtime of the current connection
2. Displays the system status (as long as the connection is active)
3. Displays the boiler status (as long as the connection is active)
4. Displays the software version of the controller

All imported files contain only a timestamp indicating when they were imported.

4.2 Establishing an additional connection



- Click the ellipsis icon (1)
- Click `Establish connection` (2)

Subsequent procedure:

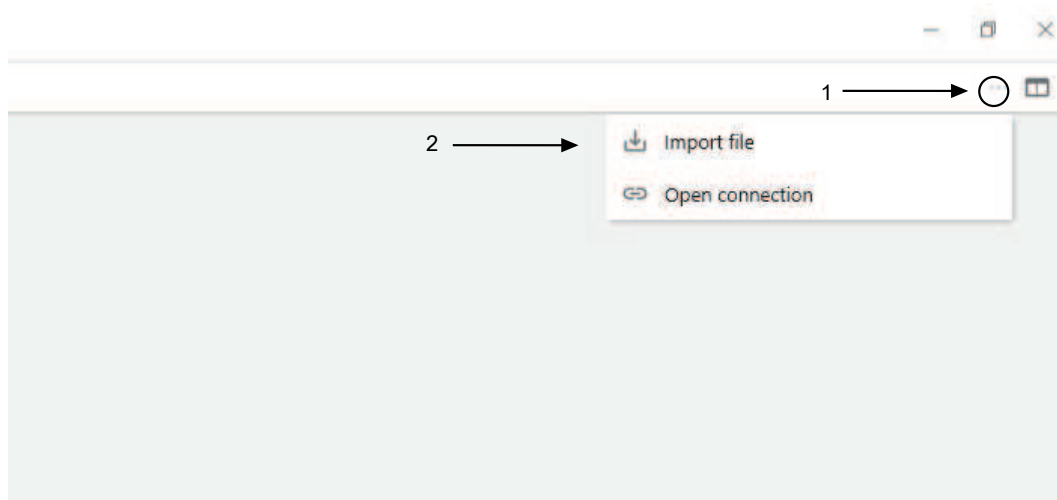
➔ ["Establishing connection to the boiler controller" \[▶ 7\]](#)

4.3 Importing files

The following files can be imported into Visualisation 4:

- Trend recording (.csv)
- Error protocol (fpr)
- System image (formerly commissioning report) (.ibn)

Note: The released file types depend on the applicable user group.



- Click the ellipsis icon (1)
- Click `Import files` (2)

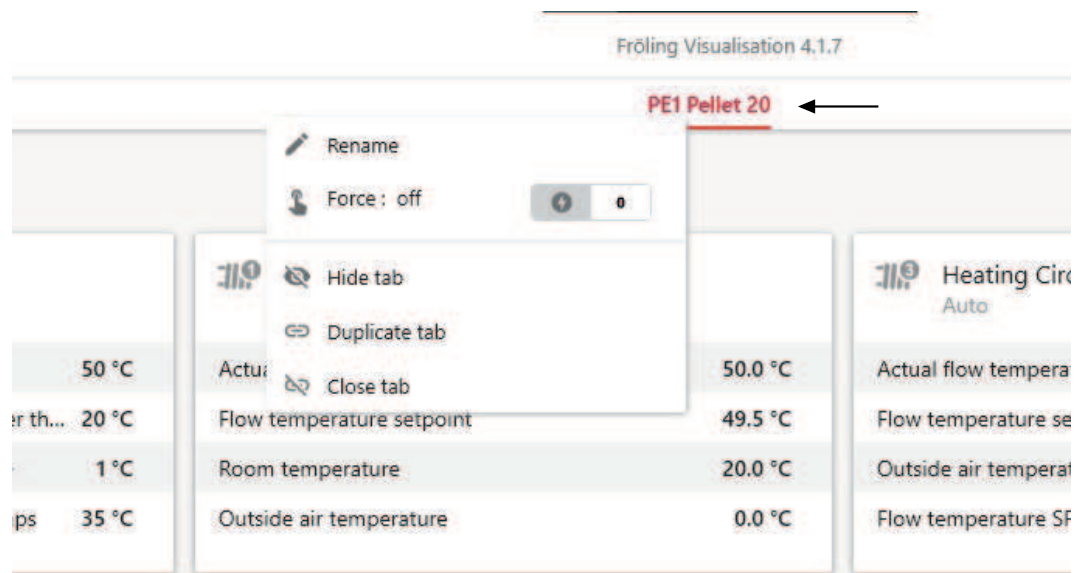
The files can also be imported using the drag and drop function.



Select the file and drag it onto the tab bar

↳ If the mouse pointer is located in the correct position, the text `Place files here` appears

4.4 Tab options



The red and underlined writing indicates that the tab is active. Each tab contains a context menu that includes the tab options.

Right-click the tab or click the ellipsis icon on the right-hand side of the tab bar to open the context menu

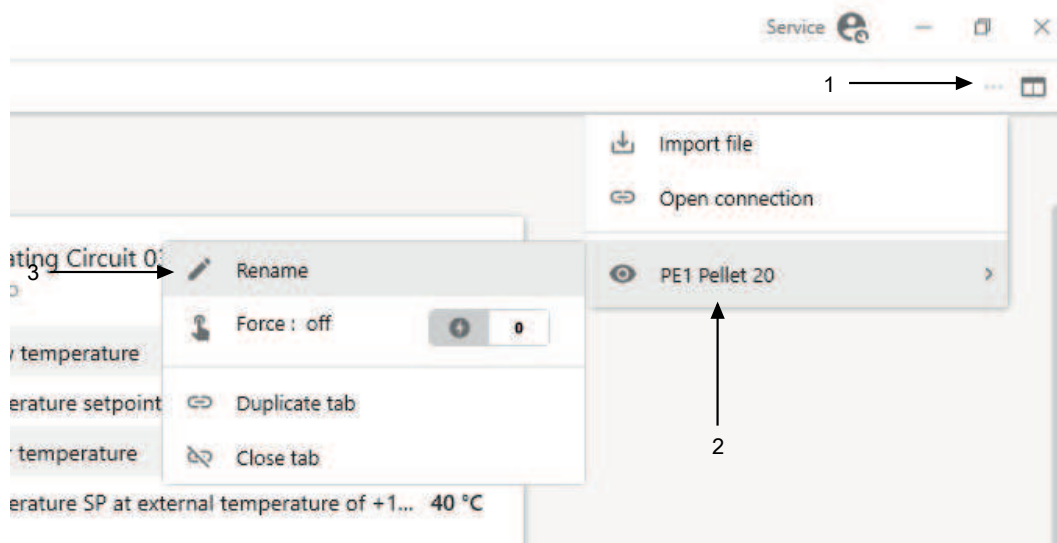
The contents of the context menu depend on the applicable user group.

Note: A shortcut can also be used to switch between tabs.

- **CTRL + TAB**: select right-hand tab
- **CTRL + SHIFT + TAB**: select left-hand tab

4.4.1 Renaming a tab

When importing files, their name is also used as their file name by default. When naming connections, the system name or the name of their connection parameters is used



- Click the ellipsis icon (1) and connection (2) in order to open the context menu, or right-click the tab name
- Click `Rename` (3)
- Enter a new tab name and confirm it by clicking `Apply`

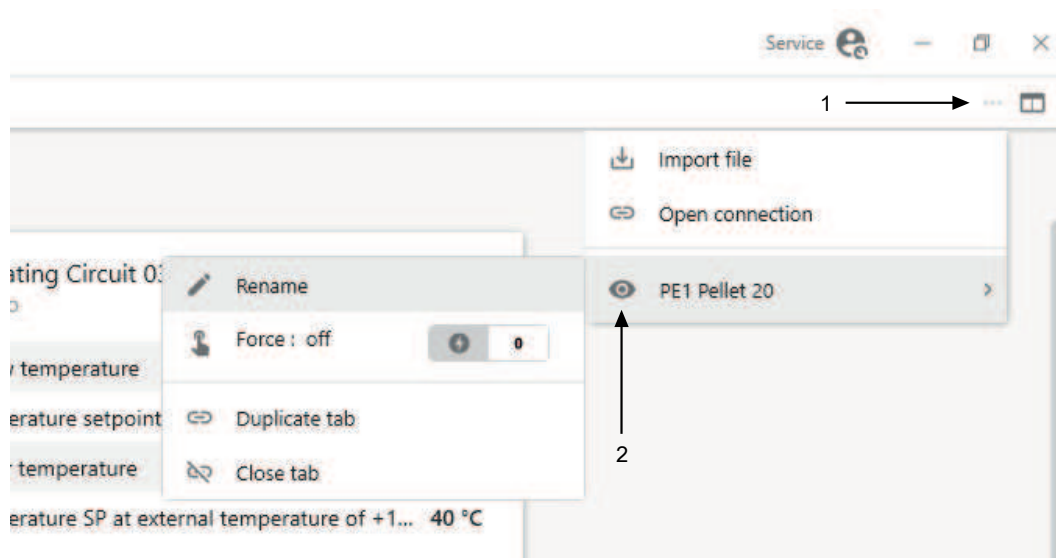
All tabs can be renamed. When renaming connection tabs, the information is also stored with the saved entry in History and Favourites. This makes it easier to retrieve entries. When establishing a connection using History or Favourites, this name is used again.

If no text is entered as the tab name, the default name (system name or connection parameter) is used again for the connections.

Note: When the cursor points at the name of the tab, a tooltip appears with additional information (standard name, connection parameters when used for connections, or directory when used for imports).

4.4.2 Hide Tab / Unhide Tab

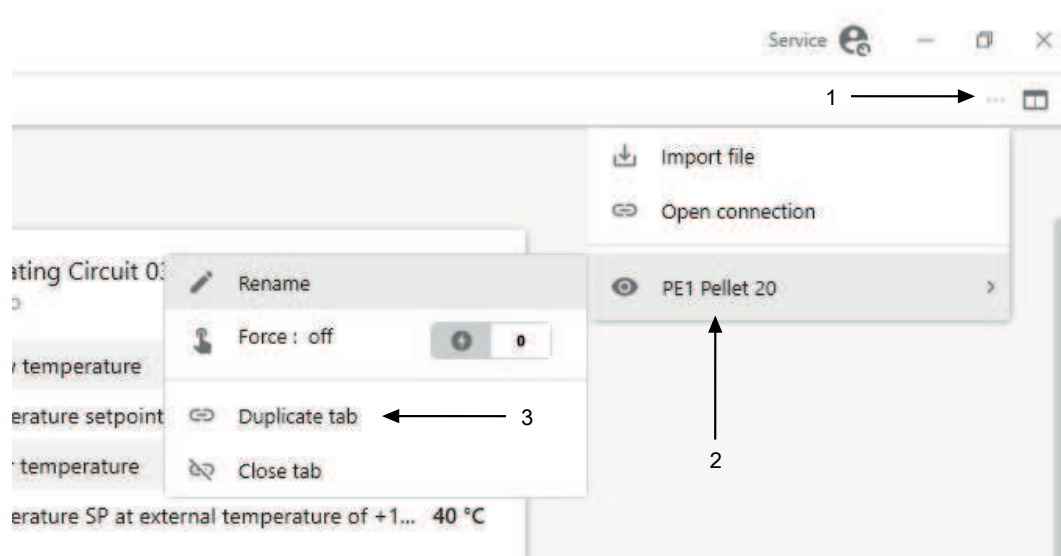
In order to better organise multiple tabs, individual tabs can be hidden and unhidden.



- Click the ellipsis icon (1) or right-click the tab name in order to open the context menu
- Click the eye icon (2) or select `Hide tab`

Hiding tabs **DOES NOT** close the connection. Hidden tabs are displayed in the same way as described above. The `Show hidden tab` option appears on the start screen if tabs are hidden.

4.4.3 Duplicating a tab



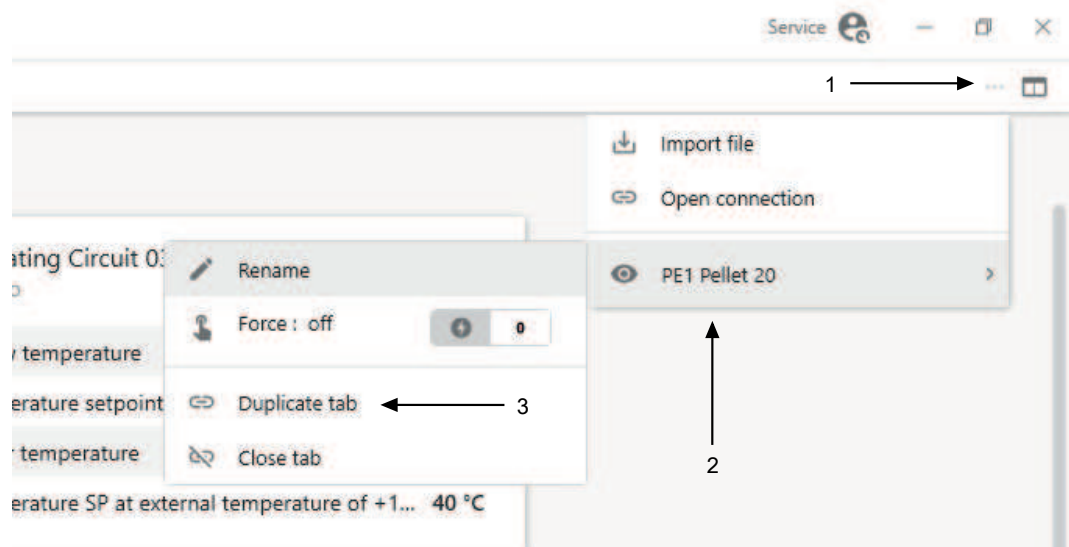
- Click the ellipsis icon (1) and connection (2) in order to open the context menu, or right-click the tab name
- Click Duplicating a tab (3)

The current view of the tab is duplicated. This function can be used in order to display several menus at the same time (e.g., trend system and component view). If several tabs of the same connection are open, the connection is only terminated when the last tab is closed.

Note: Duplicated tabs use the same data source (connection, number of files). When using the trend system, one trend configuration is generated per tab.

Example: In order created the same connection, three tabs are created. Tab 1 uses configuration 1, tab 2 uses configuration 2, tab 3 uses configuration 3. These configurations are also available when activating the next application. If tab 1 is closed and a duplicated tab is added again, the next available configuration is used. In this case, the new tab is associated again with configuration 1.

4.4.4 Close tab / disconnect connection



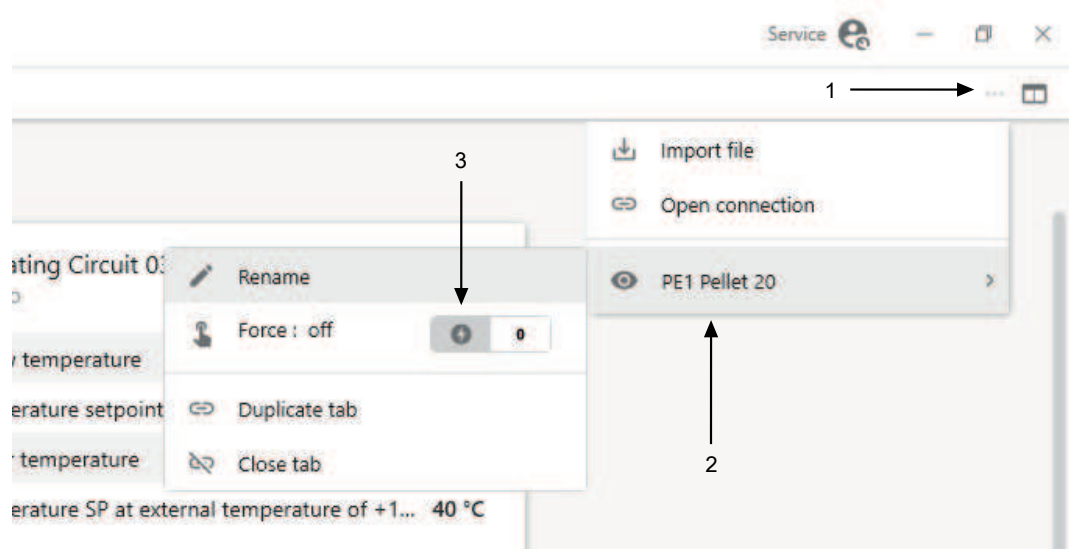
- Click the ellipsis icon (1) and connection (2) in order to open the context menu, or right-click the tab name
- Click `Close tab` (3)

If the last tab of a connection is closed, this connection is also closed.

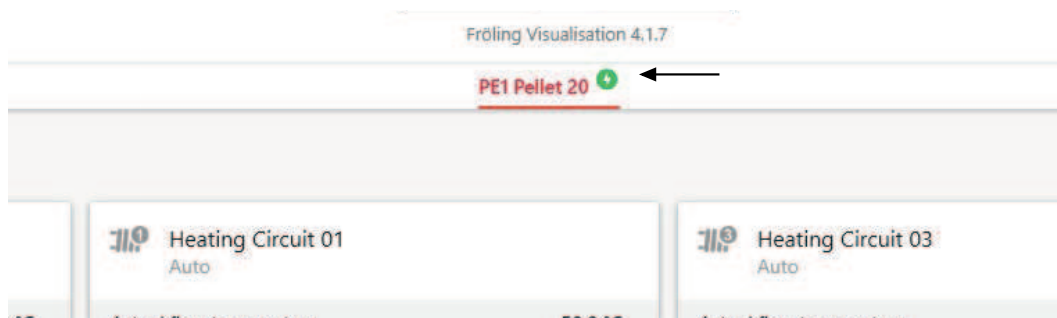
4.4.5 Forcing

User level: Service technician

Whether or not this function is available depends on the connected system and applicable user group.

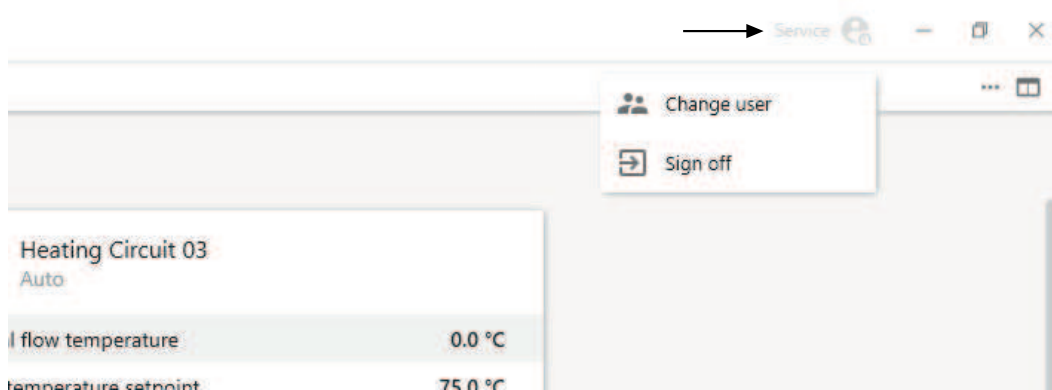


- Click the ellipsis icon (1) and connection (2) in order to open the context menu, or right-click the tab name
- Click the Slider button (3)



If the force function is active, a green lightning bolt appears next to the tab name. Digital inputs and outputs as well as analogue outputs can be overwritten when in the force mode. If the force function is deactivated, all overwritten values are reset to the default settings.

4.5 User



When Visualisation 4 is connected to a system, the current user is shown in the top right-hand side of the application bar. If several tabs are open, the user displayed refers to the active tab (highlighted in red).

- In order to open the user options, click User

4.5.1 User logoff

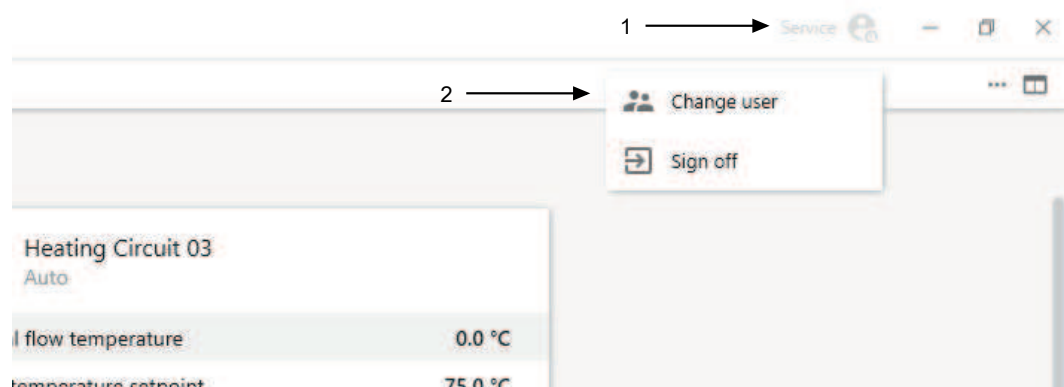


- Click the current user in order to open the user options
- Click Logoff

After the current user logs off, the default user with the lowest authorisation level is automatically logged in. At the lowest authorisation level, fewer components or menus are visible.

4.5.2 Changing the user

A user can be changed even when the connection is in use.



- Click the current user in order to open the user options
- Click Change user

Authentication

Usercode

- Enter the User code and confirm the selection by pressing Logon
 - **User code 1:** Customer

Components and menus may disappear or appear when changing the user.

4.6 Trend Auto export

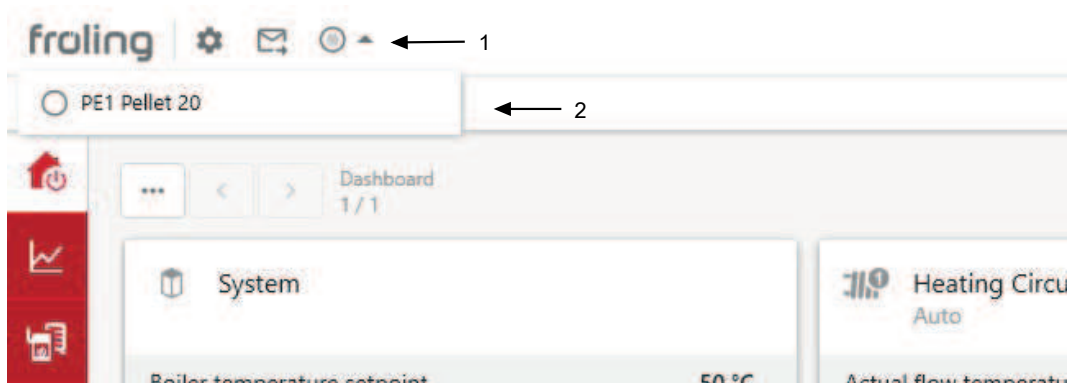
The Trend Auto export automatically saves excerpts of the trend recording regularly and stores them as a *.csv file.

Regardless of the current user, all values visible in the user level "Service" are exported. This enables the client to transmit records when they are required.

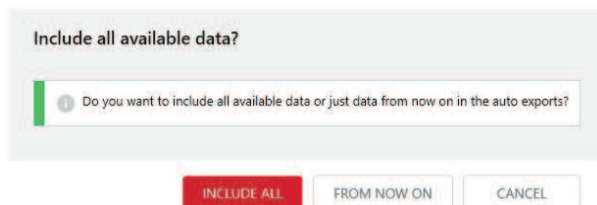
The storage location and naming of the (automatic) exports can be defined in the application settings.

➔ "Export paths and default designations" ▶ 31]

4.6.1 Starting the Trend Auto export



- Click the Record icon (1) in the top left-hand corner
- Select the connection (2)



- In order to start the export, click the `Available time frame` or `Only now` option
 - **Available time frame:** begins when the connection is established. In order to limit the amount of memory used, historical data is deleted after a certain period of time.
 - **Only now:** begins at that moment

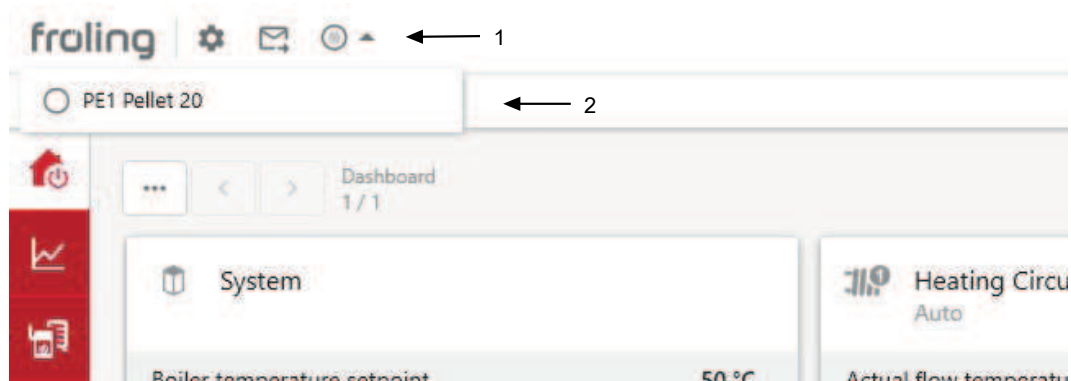
If the Auto Export is active, the icon flashes. The colour signals who started the Auto export function.

- **Dot flashes red:** The user started the Auto export function.
- **Dot flashes orange:** Due to an error, Auto export was started automatically

The Auto export function stops automatically as soon as the error has been corrected. A time period before and after the error can be adjusted in the application settings. When clicking the entry again, the automatic stop can be suspended. The dot changes colour from orange to red.

➔ "If errors are received during Auto Export" ▶ 31]

4.6.2 Stopping the Trend Auto export



- Click the Record icon (1)
- Select the connection (2)

If the cursor hovers above an entry that can be stopped, a stop icon is displayed.

4.7 Sending email

When using Visualisation 4, Outlook can be used to send files to predefined addresses. However, this requires the necessary licence and the installation of Outlook.



To access the function click the email icon. A drop-down menu does not open if only one option is enabled, but the function is started directly.

4.7.1 Requesting the last system's image

User level: Service technician

Request System Configuration

i The request can take up to 10 minutes.
You will receive a response via E-Mail.

Customer number

Equipmentnumber

- Enter the customer's number of the system

Outlook sends an automatic email to Fröling. A few minutes later, the user receives the last known system image in the e-mail inbox.

Incoming emails are not processed. After receiving the file, it must be imported.

➔ ["Importing files" \[▶ 17\]](#)

4.7.2 Sending data via email

Files stored on the PC can be selected for automatic transmission. For example, this allows sending error logs (error protocol - *.fpr) or system images (e.g., commissioning report - *.ibn).

Send Mail

Files to send

PE1 Pellet 7 - 35 _ PECO 15 - 35_0_100123456_2023-02-01 07-1...

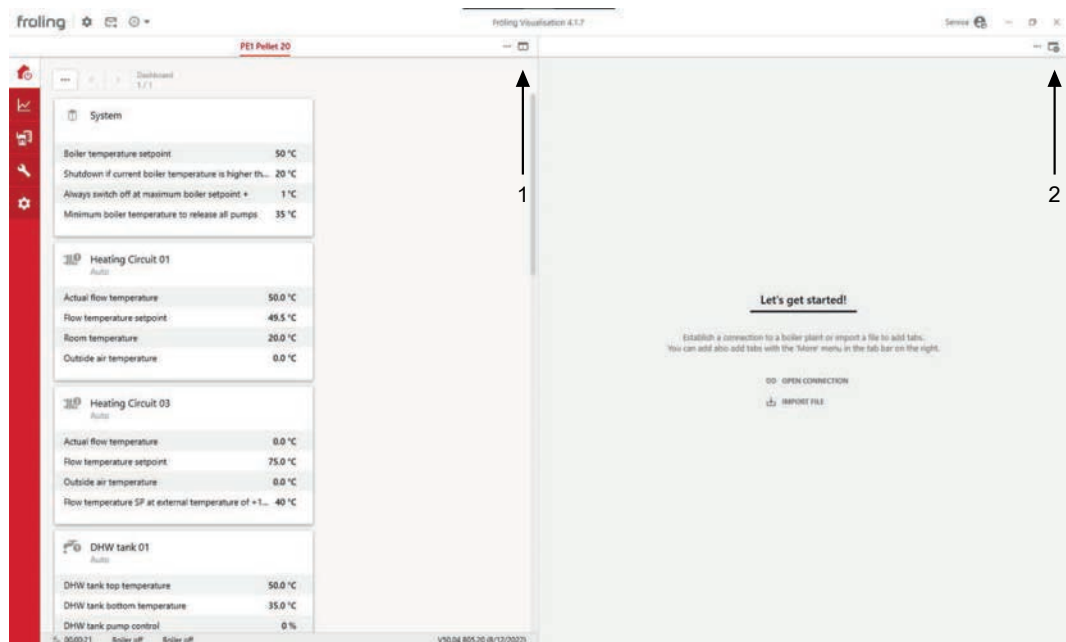
+ ADD FILE

File formats that are not supported cannot be transmitted automatically. If attempting to insert such files to an email, an orange warning symbol appears. An email draft is prepared and the user is prompted to enter a recipient.

When exporting a system image or an error log, the dialogue appears automatically if the authorisation level of the current user is at least "Service". In this case, the exported file is pre-selected. If using Outlook, sending of the file can be cancelled.

4.8 Splitting the view

The view of the Visualisation can be split in order to display several tabs at the same time.

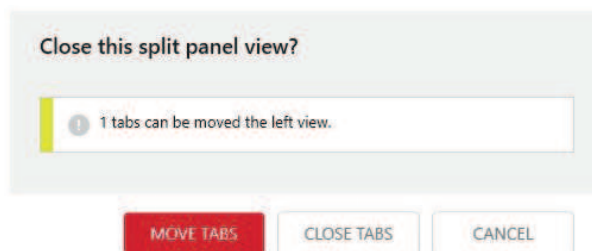


- Click the dual window (1)
- In order to close the view, click the dual window (2) again

The main view (left-hand side) cannot be closed.

Tabs can be moved between views using the drag and drop function. The active tab is highlighted red. This tab also refers to the displayed used.

Note: When importing a file or establishing a connection, the new tab is added to the view from which the file was imported or the connection was established. This view cannot be closed until the import or connection is completed.



Before closing a view that still contains tabs, a dialogue appears prompting the user to decide what to do with the tabs that are still open.

- **Accepting tabs:** Tabs are accepted and moved to the view on the left-hand side. Hidden tabs are also be accepted.
- **Close tabs:** closes tabs that are still open.

4.9 Exporting metadata

The screenshot shows a 'Protocol Meta-Data' dialog box with the following fields and values:

- Order ID:
- Customer ID: (Error: Customer ID must be a number!)
- Boiler ID: (Error: Boiler ID must be a number!)
- Manufacturer number (SQ):
- Fuel:
- Water content (%):
- Service technician:
- Customer: (Error: Customer cannot be empty!)
- Street: (Error: Street cannot be empty!)
- ZIP, City: (Error: ZIP Code cannot be empty!)
- Country:

Buttons: CONFIRM EXPORT, CANCEL

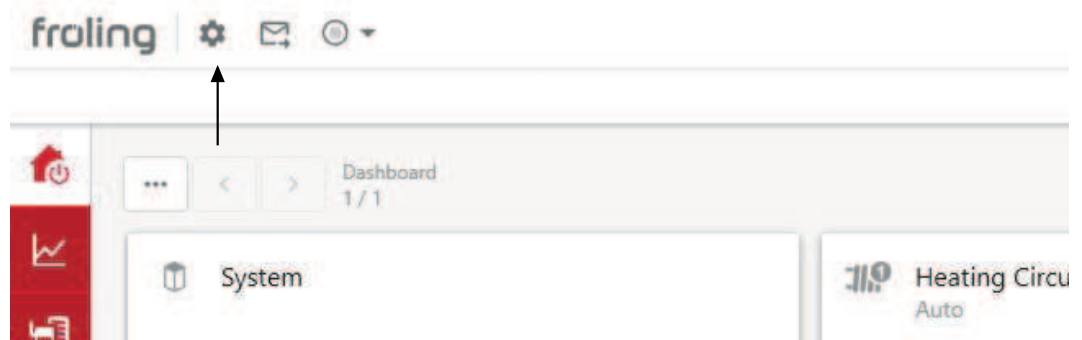
When exporting files (trend recording, error protocol and system image), a dialogue for entering the metadata protocol opens. However, to do this, the user group “Service” or higher is required. The dialogue appears each time a file is exported.

If customer data (e.g., address) is changed, this information is sent to the control system when the metadata is transferred. The prerequisite for this is that the control system used supports the updating of these data. If this is not the case, the sending the new values to the control system is skipped.

Visualisation 4 saves the entered data for the duration of the connection.

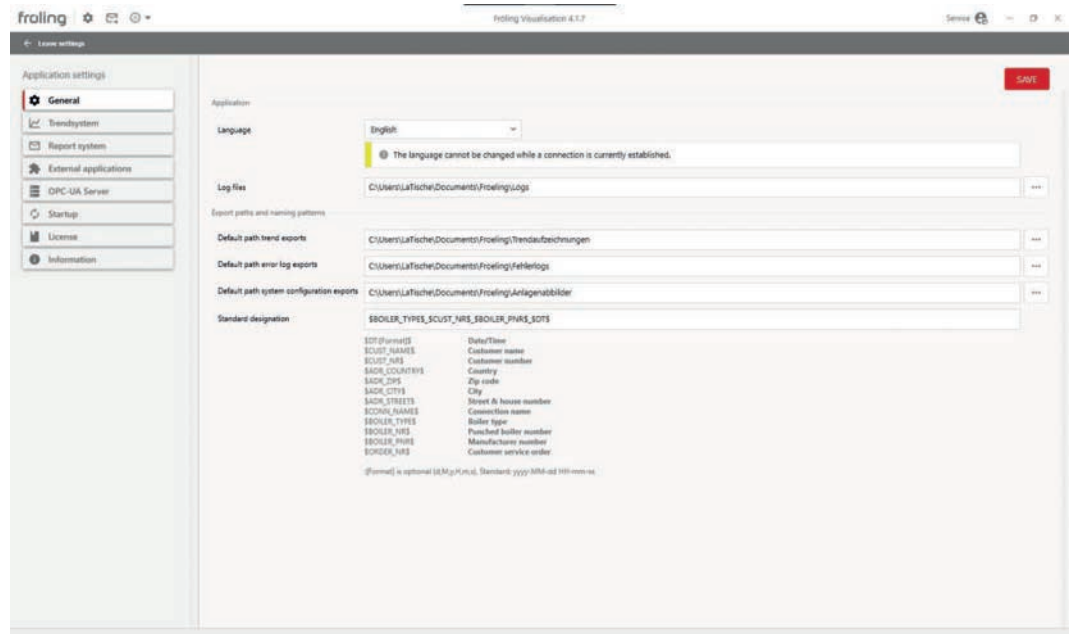
5 Application settings

Various options are available in the application settings. The settings remain unchanged when uninstalling or installing an update.



- ☐ Click the gear icon
- The application settings are opened.

5.1 General information



The most important settings are carried out in the general application settings.

5.1.1 Application

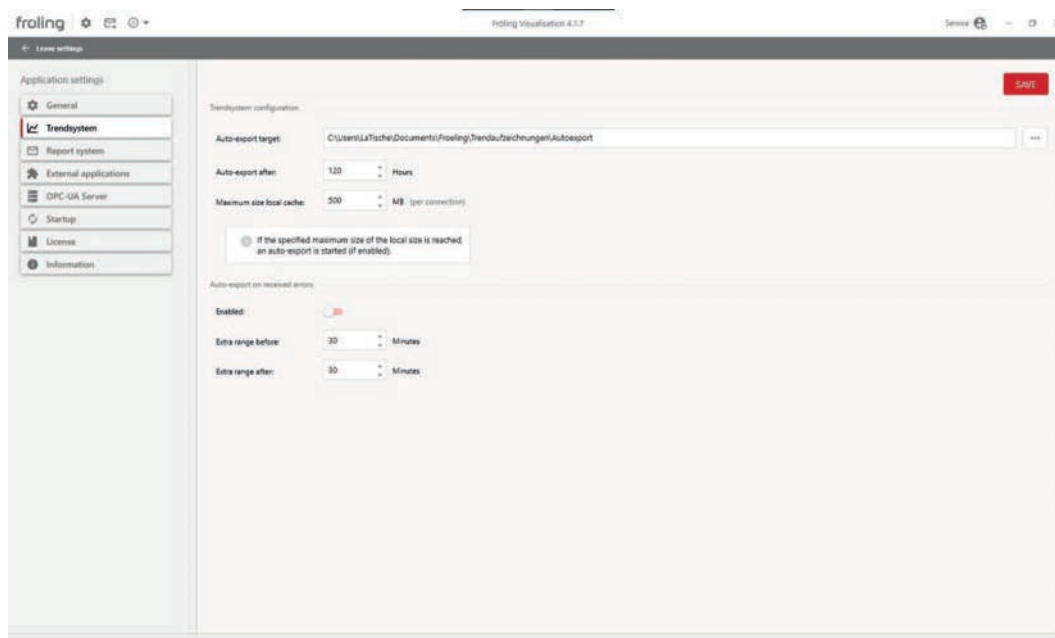
- **Language:** sets the language of the application. The default setting is the system's language. The language cannot be changed whilst a connection is active.
- **Log data:** sets the path of the log files. The log files only pertain to Visualisation 4 and are used for troubleshooting purposes. After 14 days, log data are automatically deleted.

5.1.2 Export paths and default designations

- **Default paths Export Trends:** sets the default path for manual trend exports. The path can still be adjusted during export.
- **Default path Export Error Log:** sets the default path for exporting error logs or error protocols. The path can still be adjusted during export. The error protocols only refer to errors exported from the connected system. Errors occurring within Visualisation 4 are recorded in the log files.
- **Default path Export System Images:** sets the default path for exporting system images. The path can still be adjusted during export.
- **Default designation:** contains placeholders to generate file names. The list below shows the possible placeholders. If no data is available for a placeholder, it is simply omitted. If necessary, the file names can still be adjusted during export.

Furthermore, the type is appended to the suggested file name (e.g., “[placeholder]_error protocol.fpr”).

5.2 Trend system



In this menu, special settings for the trend system can be carried out.

5.2.1 Trend system settings

- **Auto Export target path:** sets the path where the Auto Export files are saved. All exports are carried out automatically; therefore, any adjustments during the export process are not possible. These settings are read out during every Auto Export.
- **Auto Export at:** sets the interval at which an Auto Export is prepared. If an Auto Export is started for another reason, the interval is shifted accordingly.
- **Maximum size of local cache:** sets the maximum size of data that can be cached before a file is automatically prepared. This setting applies to each connection.

5.2.2 If errors are received during Auto Export

- **Activated:** determines whether or not the Auto Export function should be started in the event an error is received.
- **Extra range before/after:** sets the exported time range before and after the received error.

5.3 Message system

The messaging system automatically sends emails when new errors are received from a system. Therefore, for this purpose, authentication data of the email address from which the messages are to be sent must be disclosed.

The `Test` button can be used to send a test email to all defined recipients in order to verify the settings.

5.3.1 Message system

- **Activated:** activates or deactivates the message system.

5.3.2 Time period during which an email must be sent if an error occurs

- **Time period:** sets a duration within which notifications are sent via email.
- **Within this time period:** sets whether emails are to be summarised hourly or sent immediately within the defined time period.

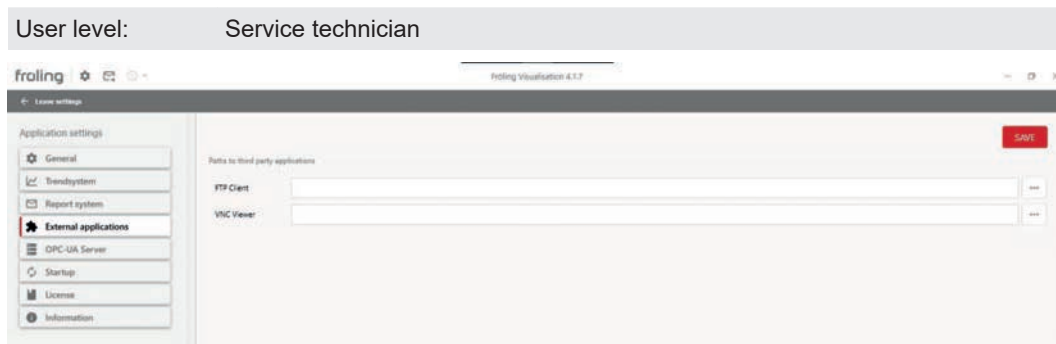
5.3.3 SMTP connection

Information of the email address that is used to transmit data. Visualisation 4 uses the login data stored here in order to use the emails. Only SMTP is supported.

5.3.4 Addresses

Recipient addresses of the emails that are to be transmitted.

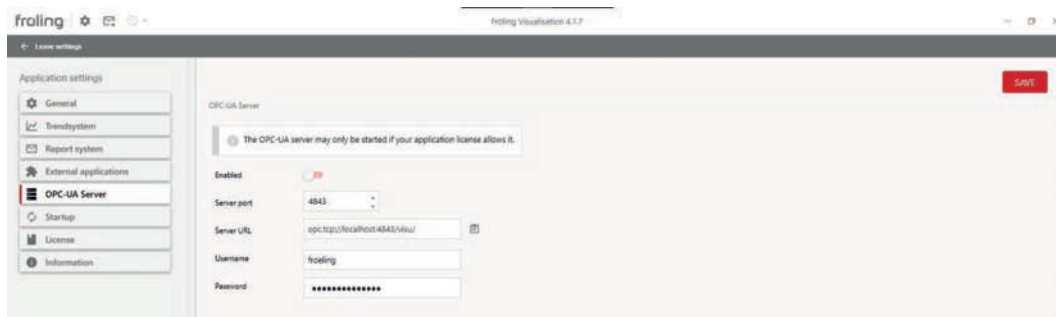
5.4 External application



Paths to third-party applications can be configured here.

- **FTP Client:** sets the path in order to connect to an FTP client. When invoking the FTP client, the arguments are transmitted appropriately for the “FileZilla” software (except user and password). For other FTP clients, the function may be limited.
- **VNC viewer:** sets the path to connect to the VNC Viewer. When invoked, the appropriate arguments (except password) are transmitted.

5.5 OPC-UA server



Used to configure and activate the OPC UA server. The OPC UA server is only started if it has been enabled by using a licence.

The port to be used can be set. The prerequisite for this is that the server is deactivated. The server URL is permanently assigned.

Note: This functionality is only available if it has been enabled by using a licence.

- **Activated:** activates/deactivates the OPC-UA server.
- **Server port:** sets the server port.
- **Server-URL:** specifies the server URL. It can also be copied by clicking the icon.

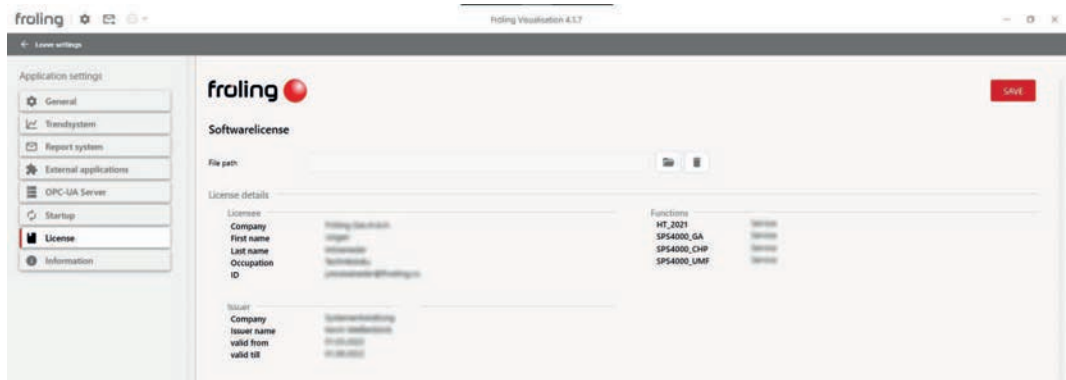
5.6 Autostart



The menu is used to configure the autostart behaviour and to prepare system-specific desktop shortcuts.

- **Adding a connected system (1):** Adding a system to the Windows autostart list. All Autostart systems are listed and can be removed again when clicking the recycle bin icon. If no system is shown in the list, the Autostart system is deactivated.
- **Establishing a desktop connection (2):** Establishes a desktop shortcut by which the application can be started. The links can be established for different systems. The Visualisation automatically tries to establish a link to the defined system. A link to the application can also be established without automatically establishing a connection.

5.7 Licence



The menu displays the software licence currently in use. The menu can be managed if exchanging or removing the licence.

5.7.1 Software licence

- **File path:** sets the path to the storage location of the used licence. Clicking the recycle bin icon removes the current licence.

5.7.2 Licence details

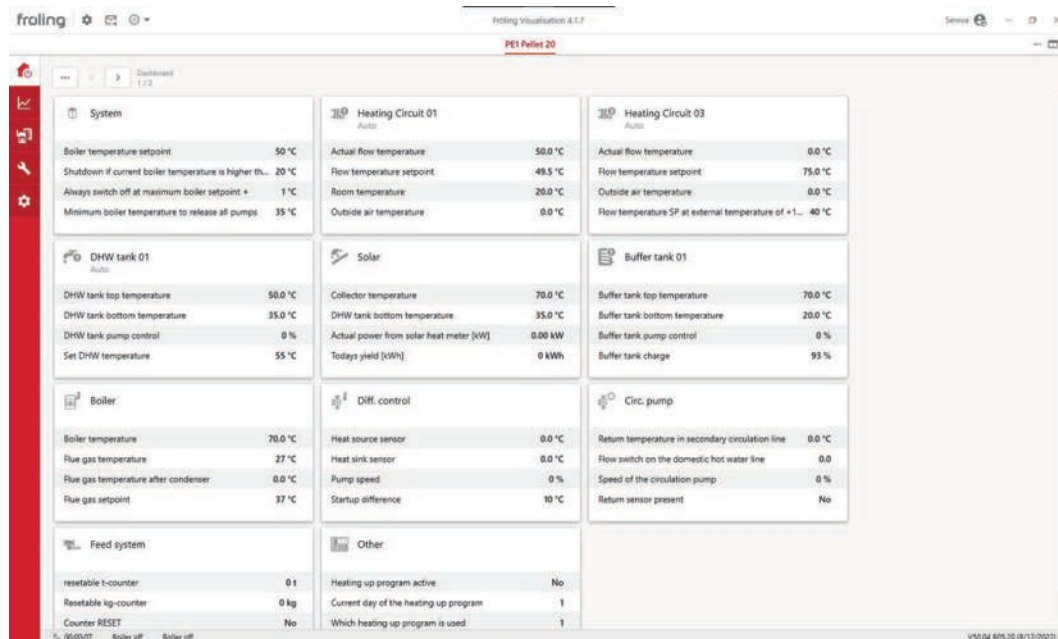
Lists all details of the current licence.

5.8 Information



This menu displays the version of the application as well as versions and licences of the software libraries currently used.

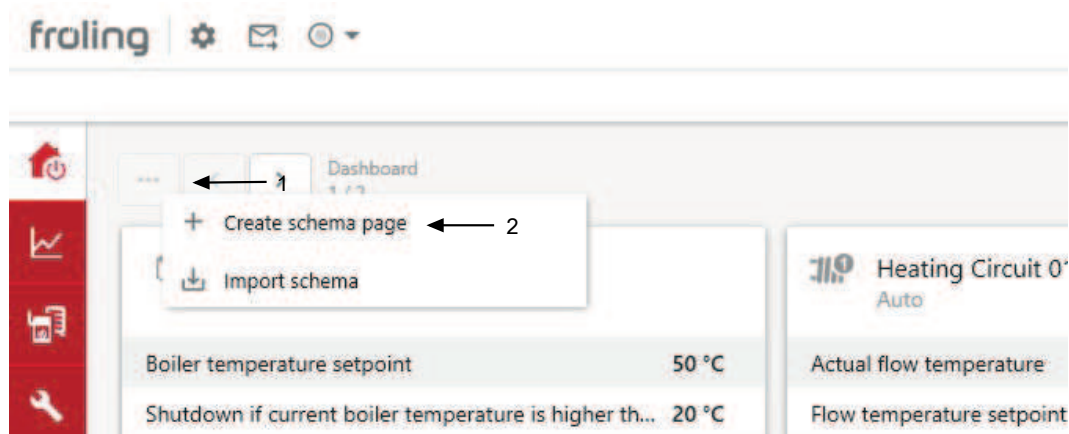
6 Dashboard and system layout



The Dashboard is displayed on the first page of the Home menu. All visible components and their most important parameters are listed here. Components cannot be extracted when used the SPS 4000 control system. In these systems, the top-level menu nodes are displayed as components.

If available, the hydraulic diagrams are shown on the following pages.

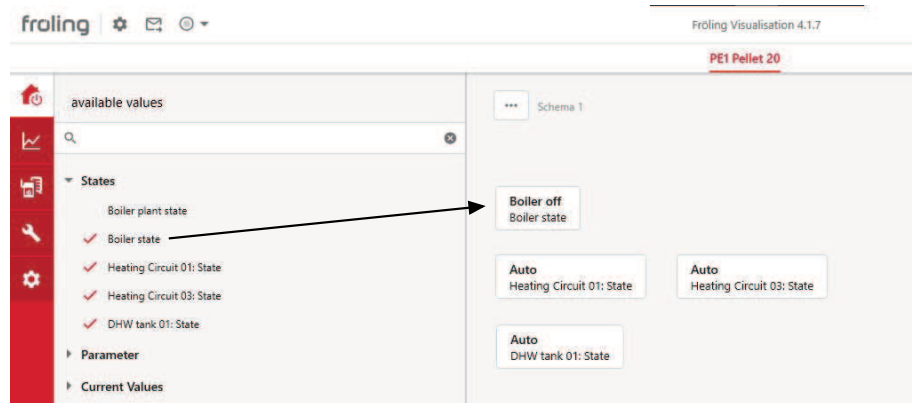
6.1 Creating a layout



- Click the ellipsis icon (1)
- Click Establish system layout page (2)

The layout page editor opens.

6.1.1 Adding values



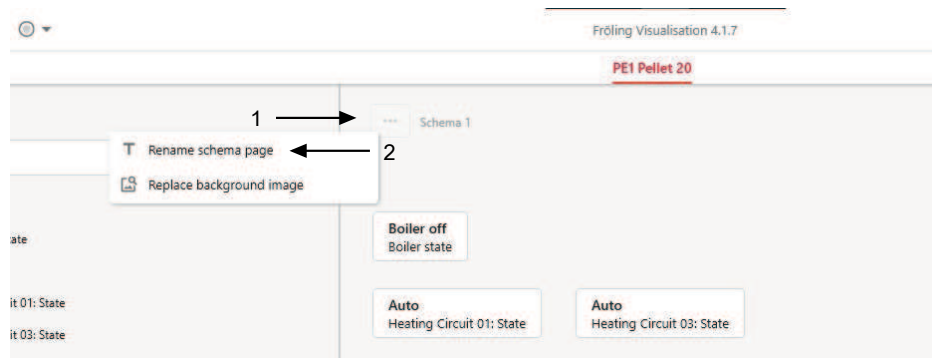
From the list on the left-hand side values can be selected placed into the layout page using the drag and drop function. Values that are already shown in the layout are indicated by a red check mark in the selection list. Values can be inserted several times.

In order to facilitate the search, the selection list is categorised. Furthermore, to find certain values more quickly, the search function above the selection list can be used.

In the editor, the values can also be positioned subsequently by using the drag and drop function.

6.1.2 Renaming the system layout page

When creating a new system layout page, a new name is generated automatically. Subsequently, the user can customise the name.



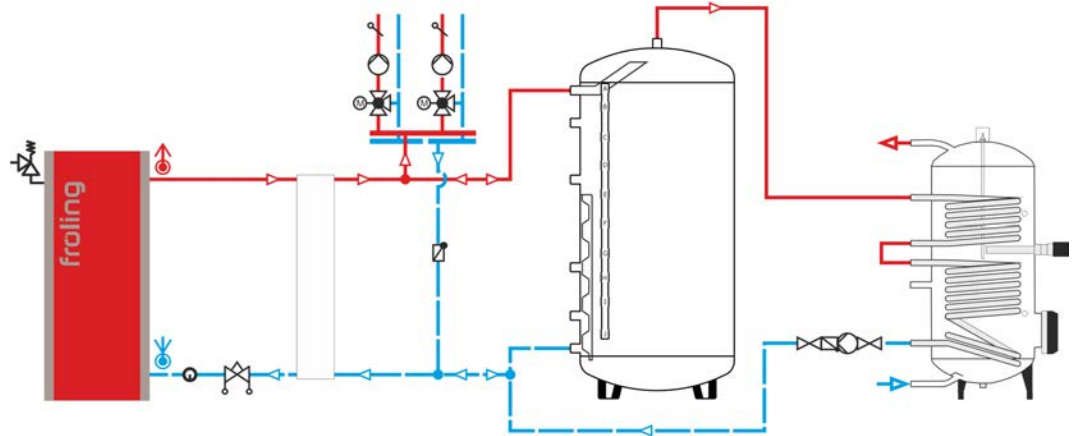
To change the name of the system's layout page, click the ellipsis icon in the top left-hand corner. Subsequently, select `Rename system schematic page`. A dialogue box appears. Here, the name of the layout page can be changed.

6.1.3 Changing the background of the layout page

For each layout page, one background can be defined. The following formats are supported:

- .bmp
- .gif
- .jpg
- .jpeg
- .png
- .svg

SVG background images are highly recommended for the best display. To change the background of the system layout page, click the ellipsis icon in the top left-hand corner. Subsequently, select `Replace background image`. The file dialogue box appears. Here, the folder with the enclosed background images is preselected.



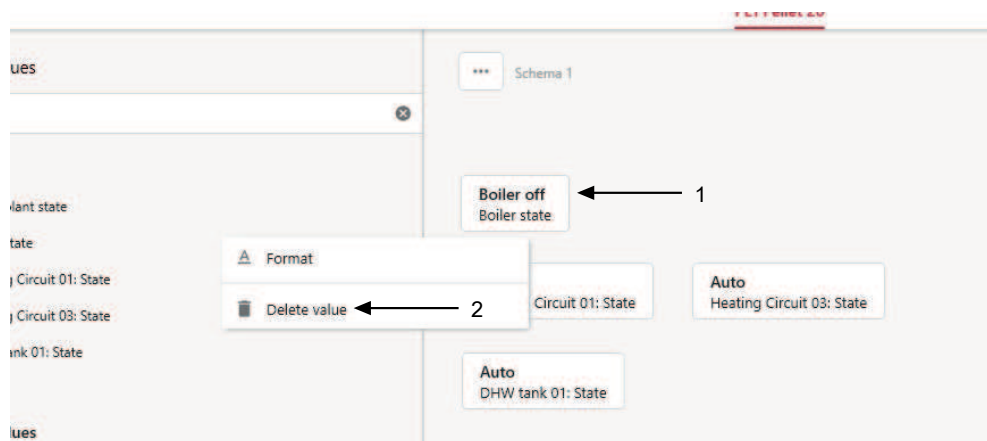
When confirming the background image, it is immediately displayed and resized to fit the current window. The position and size of the background image can be edited. To do this, the background image must be clicked in the editor. A selected background image is boxed in, indicating a red rectangular frame with small circles in each corner.

When using the cursor, the selected image can be shifted in order to change its position. The size of the image can be changed by simply sliding the corners in any direction.

When resizing the image, the ratio of the sides is maintained. In order to avoid this effect, the user must keep the SHIFT key pressed whilst sliding a corner.

Note: If pixel-based graphics (all except SVG) are used, there is a possibility that the background image will become blurred when resized. After saving the image, the latter is used again with the perfect resolution. If the graphic is resized beyond its maximum resolution, the image will be blurred.

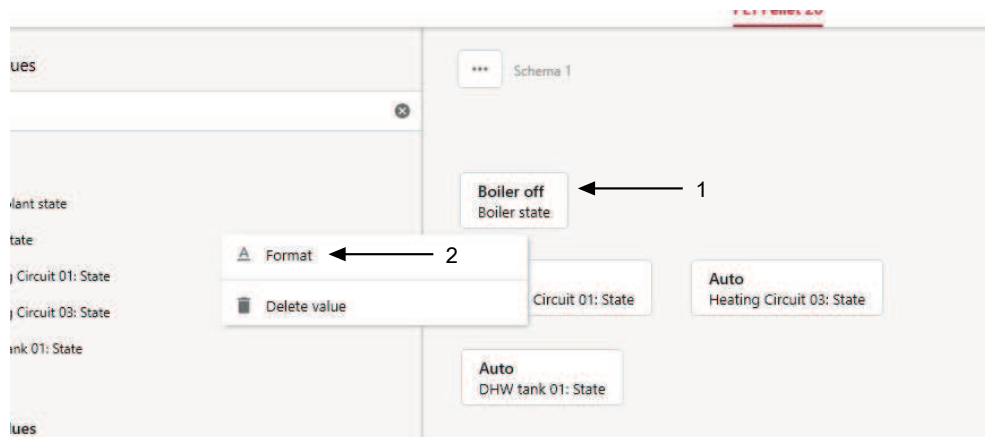
6.1.4 Deleting values



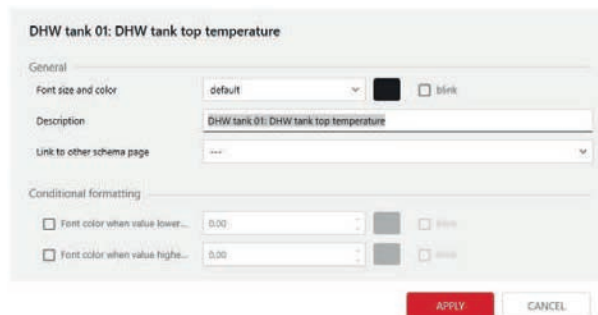
Each value on a layout page has a context menu (right-click). This context menu can only be opened in the editor mode.

- Right-click on the value (1) to open the context menu
- In order to delete the value, click `Delete value` (2)

6.1.5 Formatting the layout



- Right-click on the value (1) to open the context menu
- Click `Formatting` (2)



- Format the value and confirm it by clicking `Apply`

General information:

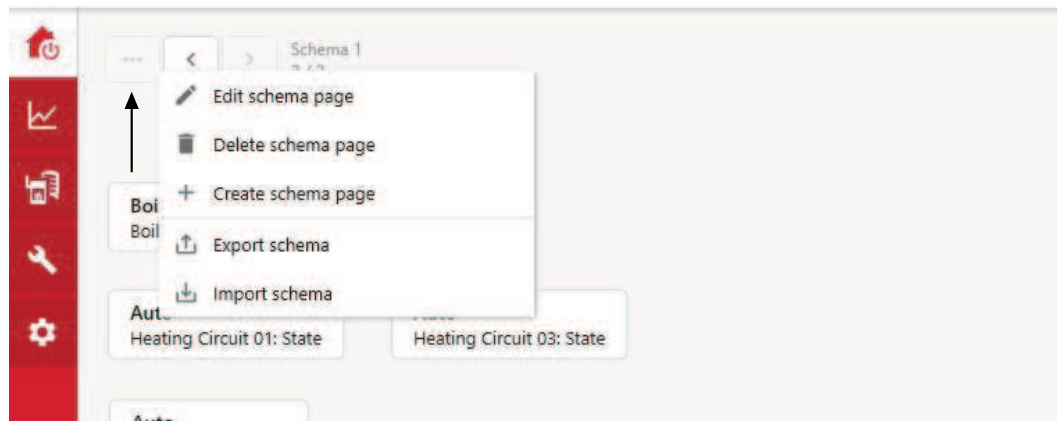
- **Font size and colour:** sets the font size and colour. Furthermore, the value can be set to flash by pressing `Flash`. This type of formatting is the default formatting. As an option, conditional formatting is possible. Any change in formatting is immediately displayed in the layout page in order to quickly find the ideal formatting.
- **Caption:** specifies the text below the value. If the cursor hovers above the value, the original name remains in form of a tooltip.
- **Link to another layout:** links the value to the previously created layout. A red `Link` icon appears next to the value. If clicking the value, the linked page is displayed. If there are no other layout pages yet, this field is deactivated.

Conditional formatting:

- **Font colour if value is below/above:** sets a threshold. If the value exceeds or falls below the respective threshold, its colour changes. A click on `Flashing` makes the value flash as well.

Depending on the value type, there may also be the conditional formatting `if value ON` (e.g., for digital values), or `if value YES` (e.g., for “Yes/No” values), as these systems can only assume two states.

6.2 System layout main menu



☐ Click the ellipsis icon

The context menu of the system layout page opens.

6.2.1 Editing the system layout page

Opens the layout page editor.

➔ ["Creating a layout" \[▶ 36\]](#).

6.2.2 Deleting a system layout page

Deletes the currently selected layout page.

6.2.3 Creating a system layout

Creates a new layout page.

➔ ["Creating a layout" \[▶ 36\]](#)

6.2.4 Exporting a system layout

Saves the entire system layout as a files. The file contains all layout pages prepared for the system.

6.2.5 Importing a system layout

Imports a system layout from a file. The imported system layouts are added to the current pages.

7 Trend system

7.1 Operation

7.1.1 Adding / changing the trend tab

By default, four tabs are created for the trend. The available values are divided into the following categories:

- Current values
- Analogue outputs
- Digital outputs
- Digital inputs



- Click the tab (1) to display the tab
- Click the Plus icon (2) in order to create a new tab

Add tab

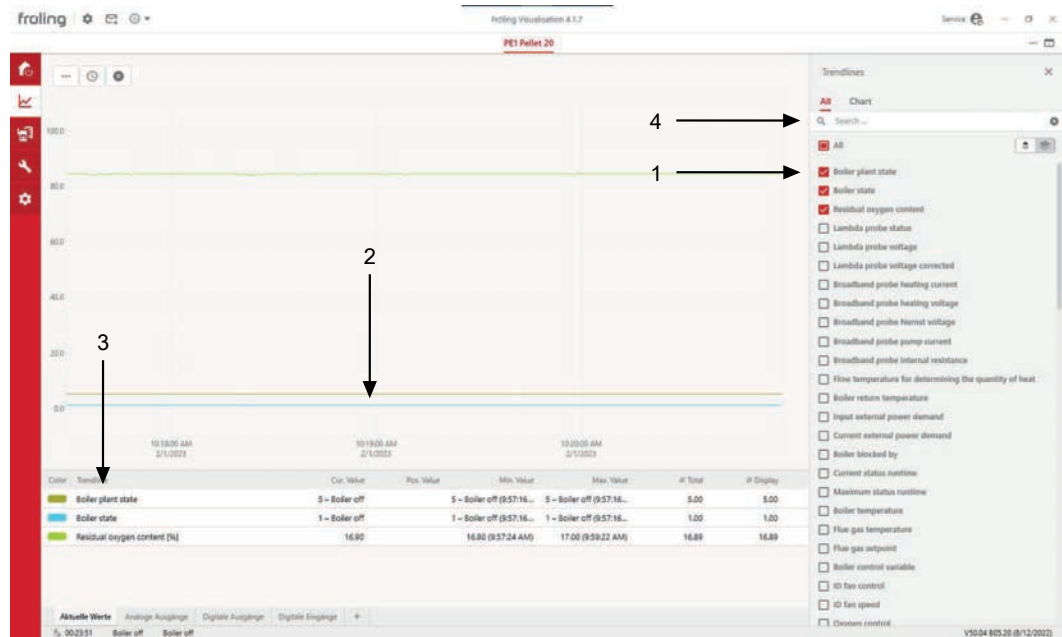
Name*

Input must not be empty!

APPLY
CANCEL

- Name a new tab name and confirm it by clicking `Apply`
- Tab created by the user contain all available values.

7.1.2 Adding/ removing a trend line

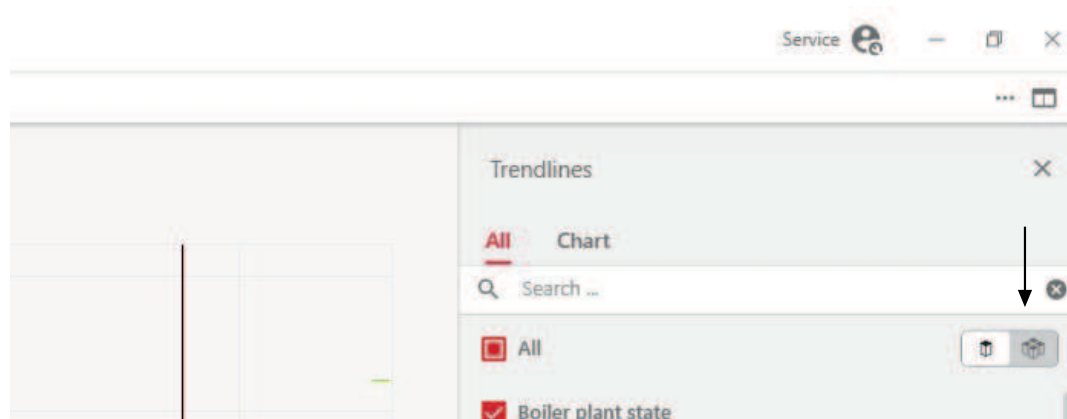


In order to add / remove a trend line, click the check box icon (1)

Selected trend lines appear in the graph (2) and below in the overview (3). If trend lines are selected for display, a red check box icon in the trend line selection pane on the right-hand side identifies them. The selection always refers to one trend tab.

In order to find specific trend lines faster, the trend tabs can be filtered using the Search function (4).

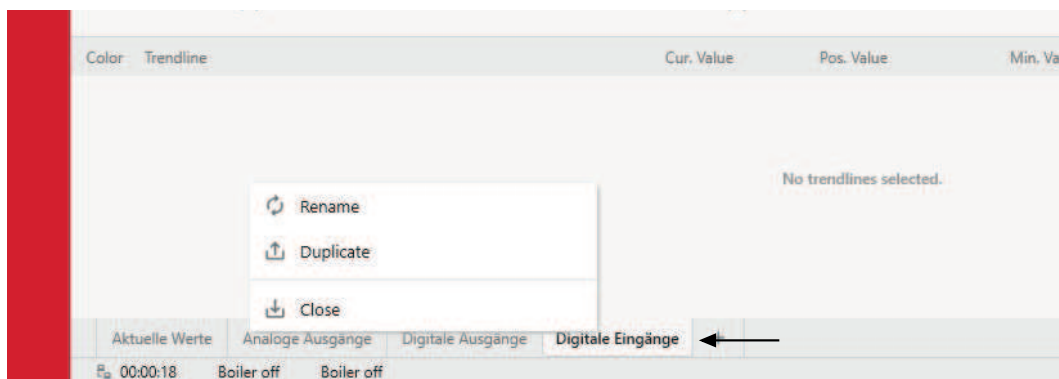
7.1.3 Adding a trend line from another system



In order to display trend lines of all available systems, click the Slider button

The trend line selection is grouped by source. Trend lines from other linked systems or imported files can be added.

7.1.4 Trend tab options

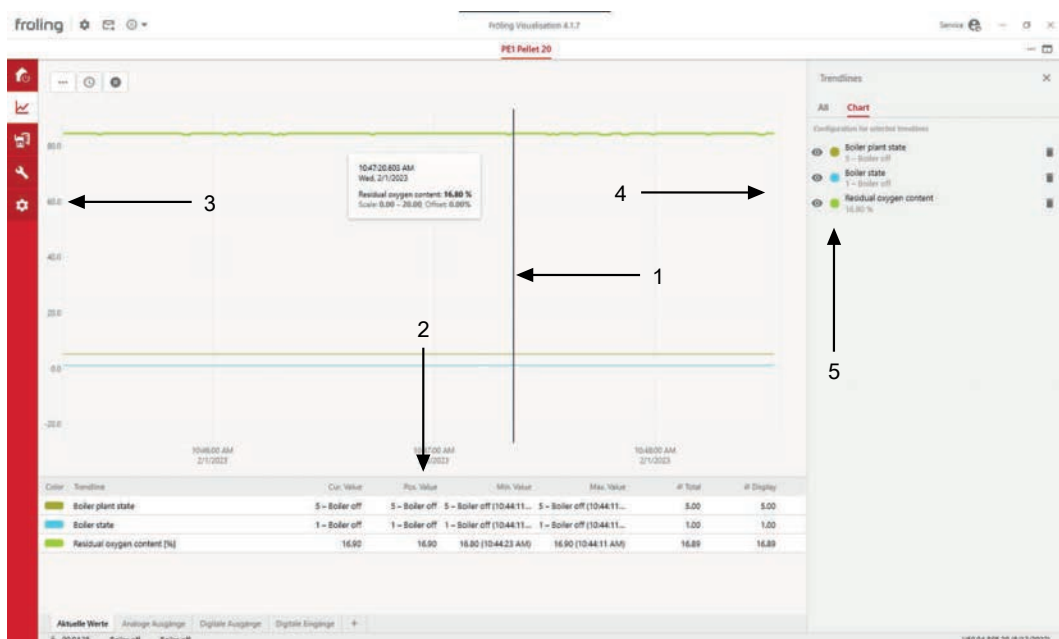


☐ Right-clicking on Tab opens the Tab options

- **Renaming:** A tab can be renamed.
- **Duplicating:** duplicates the tab within the trend.
- **Close:** closes the tab.

Note: If one of the default tabs (Current Values, Analogue Outputs, Digital Outputs, Digital Inputs) is duplicated, the filter is removed. The selection of the new tab contains all trend lines.

7.1.5 Display position value



A black line in the graph displays the position of the cursor. When the cursor is positioned on a trend line (1), the latter is highlighted and a tooltip appears, revealing additional information.

The table in the `Pos. value` column (2) shows the values at the selected time (black line) for all trend lines. Regardless of the configured scaling, the real values are shown in this column.

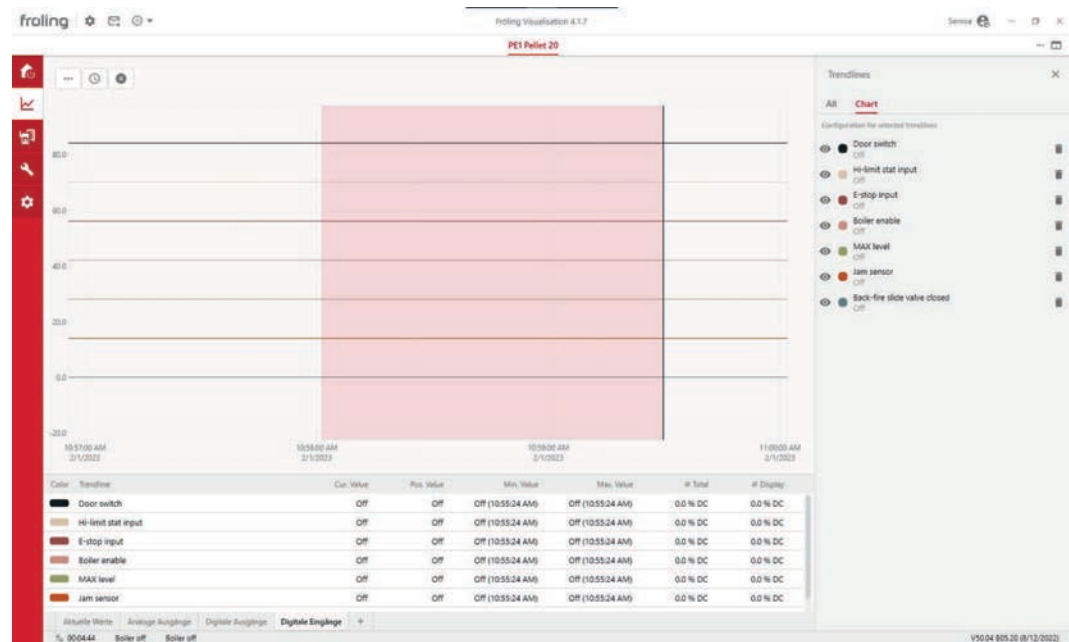
The values of the vertical axis (3) on the left-hand side are expressed as a percentage. The scale can be changed by moving the cursor on to the axis and subsequently moving the mouse wheel.

The vertical axis (4) on the right-hand side is specific to the trend line and must be activated in the trend line options. The axis is shown in the same colour as the associated trend line and indicates absolute values in the trend line's unit of measure. Several specific axes can be displayed.

➔ "Trend line options" [▶ 46]

In the Diagramarea (5), all trend lines displayed in the graph are listed with the current value. If the cursor is positioned over an entry, this trend line is highlighted in the graph.

7.1.6 Shortcuts

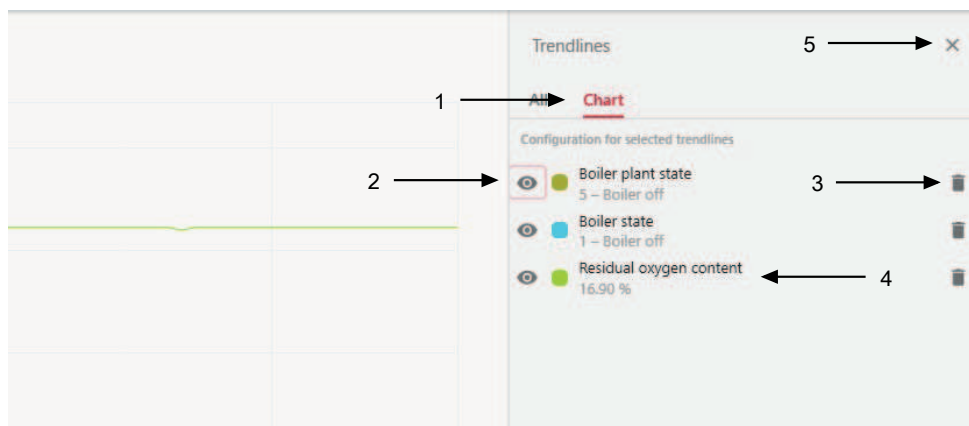


- **Arrow keys:** Used to shift the trends horizontally or vertically.
- **Ctrl + arrow keys:** Used to shift the trends slightly in horizontal or vertical direction.
- **Mouse wheel / Plus and Minus on numeric key pad:** Zooming in and out of the displayed area.
- **Mouse wheel / Plus and Minus on numeric key pad = Ctrl:** Fine adjustment of the displayed area.
- **Ctrl + Y:** Resets the vertical range to the default size (-10 to 110 per cent).
- **Ctrl + left mouse button:** Selection of an area to be zoomed in horizontally. The selection area is highlighted in red.

Note: If the shortcuts do not work, click once inside the graph. The key combinations should now be evaluated correctly.

7.2 Trend line configuration

7.2.1 General information



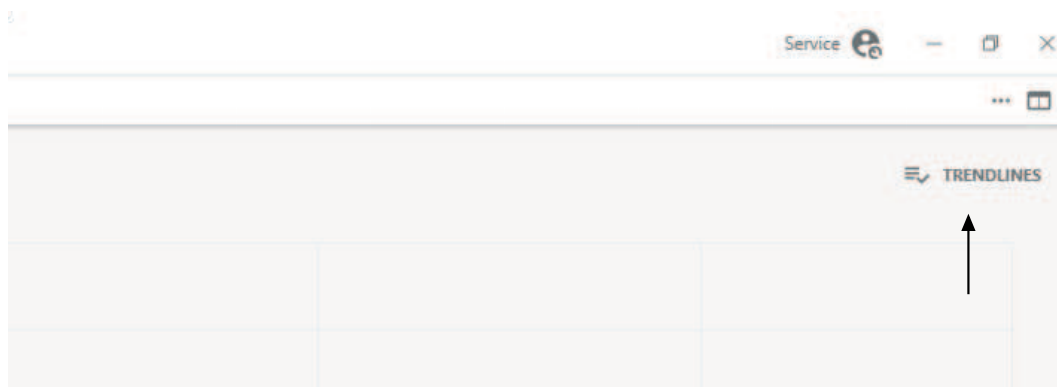
Trend lines can be configured in the `Diagram` tab (1).

If clicking the eye icon (2), the respective trend line can be faded in and out. Hidden trend lines are not displayed in the graph; however, they remain listed in the `Diagram` tab and do not have to be searched in order to unhide them again.

The recycle bin icon (3) deletes the associated trend line. This is equivalent to removing the checkmark in the selection area.

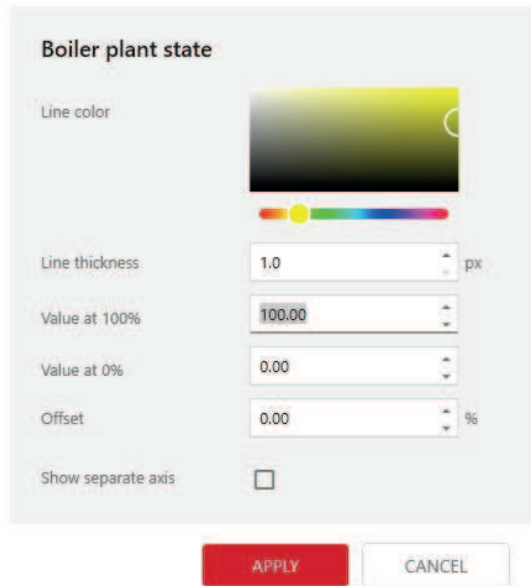
Double clicking the name of the trend line (4) opens the trend line options.

Clicking the “X” icon (5) closes the trend line selection.



If the trend line selection is hidden, it can be displayed again by clicking on the `Trendline` button.

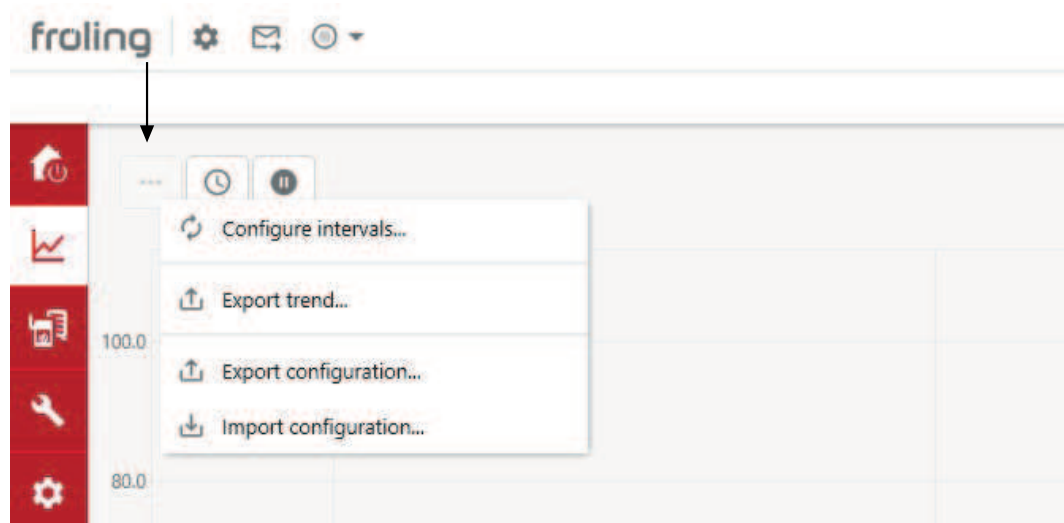
7.2.2 Trend line options



- **Line weight:** changes the line width of the drawn graph.
- **Value at 100 %:** sets which value the graph corresponds to 100% on the major vertical axis.
- **Value at 0 %:** sets which value the graph corresponds to 0% on the major vertical axis.
- **Offset:** determines the offset of the graph on the major vertical axis in %.
- **Display own axis:** adds another axis in the same colour to the right-hand side of the graph. The additional axes show the actual value regardless of the set scaling (value at 100 %, value at 0 %, offset).

In order to apply the changes, click `Apply`

7.3 Trend options



In order to access the trend options, click the ellipsis icon

7.3.1 Exporting trends

The screenshot shows a 'Configure export' dialog box with the following fields and options:

- Export mode:** Radio buttons for 'Current selection' (selected) and 'All data'.
- Export interval:** A text input field containing '3.0' and a 'sec' unit indicator.
- Timerange:** Two date and time pickers. The first shows '2/1/2023' and '11:10:48 AM'. The second shows '2/1/2023' and '11:40:48 AM'.
- Export file:** A text input field containing the path 'C:\Users\LaTische\Documents\Froeling\Trendaufzeichnungen\PE1-Pe'.
- Buttons:** A red 'START EXPORT' button and a white 'CANCEL' button.

This function exports the trend as a *csv file.

- Select the `Export mode`
 - **Current selection:** Only the selected trend lines are exported. If the selection contains trend lines of several links, the trend lines will be exported together into a *csv file.
 - **All data:** All available trend lines are exported. This also includes trend lines not shown on the graph. Regardless of the current user, all values visible in the user level "Service" are exported. If the selection contains trend lines of several links, a separate file is generated for each link.
- Set an `Export interval` and `Time period`
 - ↳ A long-range export interval saves storage space, however, short-term changes may be lost.
- Go to `Export file` to specify the path to the storage location
- In order to confirm the selection, click `Start export`

7.3.2 Exporting a configuration

This function saves the configuration of the current trend tab as an *xml file.

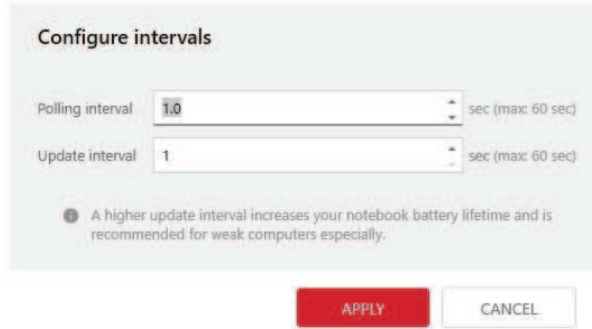
This configuration comprises:

- the description of the tab
- the area of the major vertical axis
- the configurations of the trend lines

7.3.3 Importing a configuration

This function imports a configuration from an xml trend tab configuration file. This creates a new trend tab and applies the imported configuration to it. When opening the file selection dialogue box, the folder with the supplied configurations is preselected.

7.3.4 Configuring the intervals

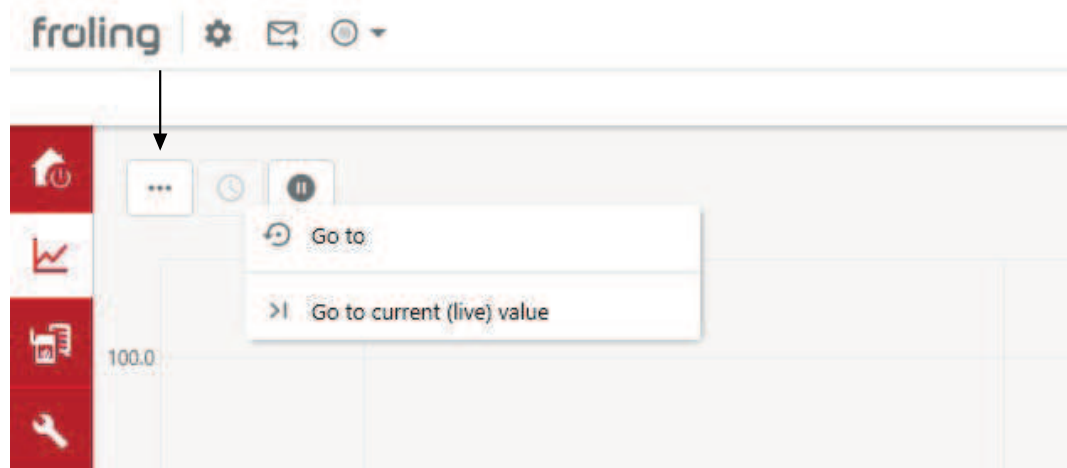


- **Scanning interval:** determines how often the values of the system are recorded per second. This only applies to the existing systems (LTC3200, SPS4000).
- **Updating interval:** determines how often the application updates the trend view. A longer interval can extend the battery life whilst in notebook mode or reduce the utilisation of the notebook.

These settings apply to the entire application and are used for all tabs / systems.

7.4 Go to

The application offers two options to navigate to specific areas. A timestamp can be specified or simply navigated to the current live value.

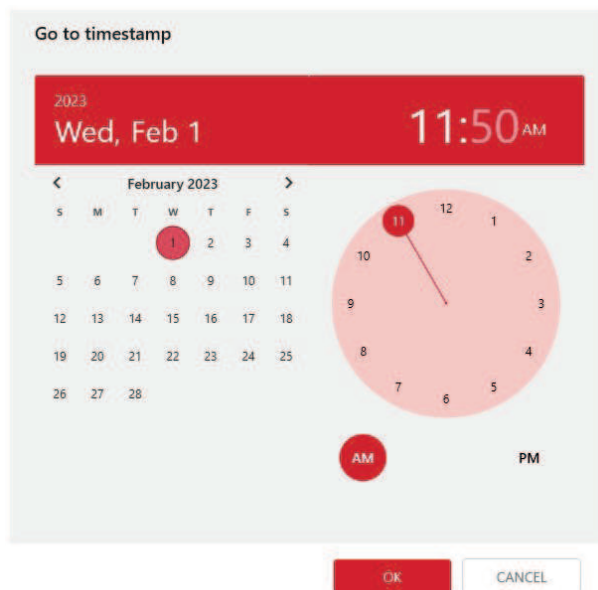


- ☐ Click on the clock icon in order to open the menu

7.4.1 Skip to the current value

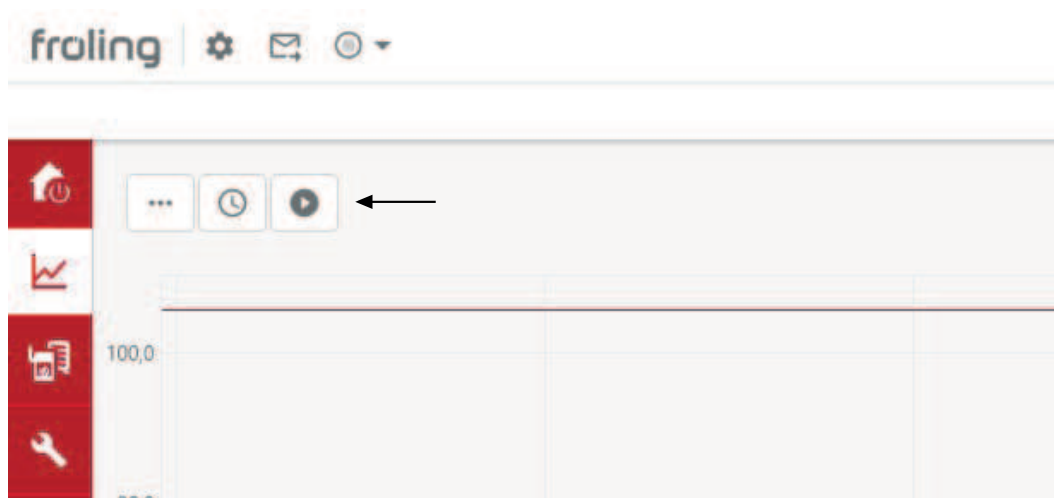
The trend skips to the current time.

7.4.2 Go to the time stamp



The exact time stamp can be specified using time and day/month/year. The trend only skips to the specified point in time if final values apply to it.

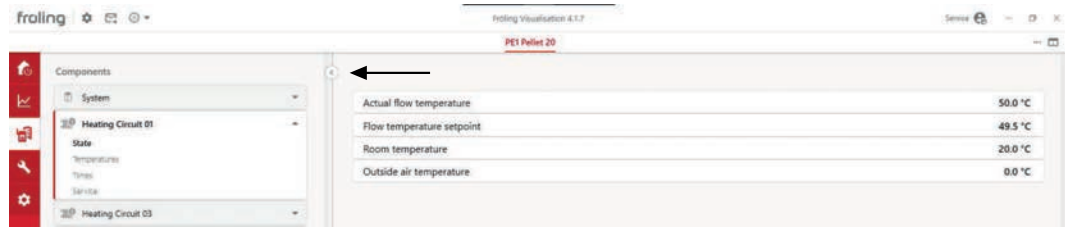
7.5 Pause / Resume



☐ Click the Play icon in order to pause / start the display of the live values

When pausing the display, only the automatic shifting of the trend (e.g., every second) is stopped. The trend is updated in the background and continues to run at the specified update interval when clicked again.

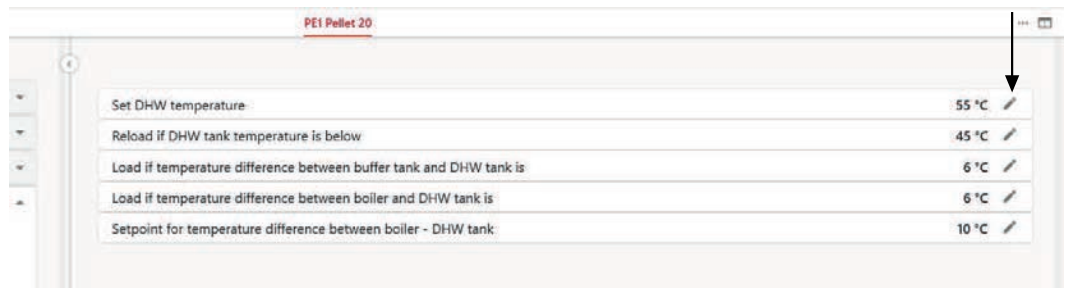
8 Components



The components menu contains all visible components of the current system (1). The components and their applicable menus (2) are listed on the left-hand side. This area (3) can be collapsed in order to save space. When collapsed, the area is displayed automatically when the cursor hovers over it. This function is available in other menus as well (component overview, diagnosis, system configuration).

The values and parameters (4) of the selected menu node are listed on the right-hand side. The currently opened menu node (5) can be recognised by the bold print. If the connection is interrupted for too long, three dashes (---) are displayed instead of the current value. In this case, the Visualisation assumes that the values are no longer up-to-date.

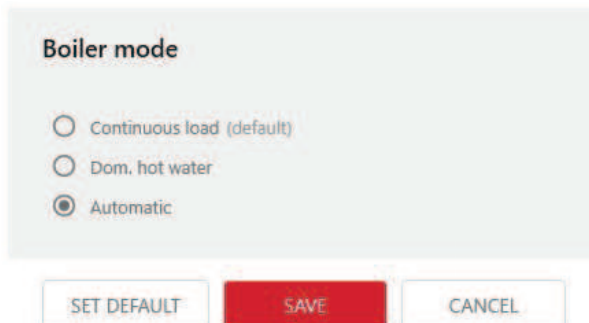
8.1 Setting parameters



Parameters marked with a pencil icon can be edited.

- Click the pencil icon in order to edit the parameter

8.1.1 Using the selection menu to set parameters



One of several options can be selected.

When activating the `Set default` value function, the parameter is reset to its default value.

8.1.2 Setting numeric parameters

A value can be set within the defined range. In order to change the value, use the slider, the plus and minus icons as well as the text field. If the cursor is hovering above the text field, the value can also be changed using the mouse wheel.

The dialogue box contains information about the previous value, the set value's deviation from the previous value, as well as standard, minimum, and maximum values.

When activating the `Set default value` function, the parameter is reset to its default value.

8.1.3 Setting the heating time parameters

When entering the start and end time, the heating periods can be set. By using the Plus icon new heating times can be added; when using the Recycle can icon, existing heating times can be deleted. The number of possible heating times per day is specified by the relevant system. If the maximum number of heating times is reached, the Plus icon disappears.

When `Save for` is selected, the days of the week to which the settings are to be applied can be specified. This way several days of the week days can be edited at the same time.

Note: Both 00:00 and 24:00 are valid entries for the time of day. 00:00 identifies the start of the day and 24:00 identifies the end of the day.

8.1.4 Setting the time parameters

The solar panel system pump is allowed to run until

11:00 PM

+0 min
unitl now: 11:00 PM

Min. 0:00 AM
Default 8:00 PM

Max. 0:00 PM

SET DEFAULT SAVE CANCEL

A value can be set within the defined range. In order to change the value, use the slider, the plus and minus icons as well as the text field. If the cursor is hovering above the text field, the value can also be changed using the mouse wheel.

The dialogue box contains information about the previous value, the set value's deviation from the previous value, as well as standard, minimum, and maximum values.

When activating the `Set default` value function, the parameter is reset to its default value.

Note: Both 00:00 and 24:00 are valid entries for the time of day. 00:00 identifies the start of the day and 24:00 identifies the end of the day.

8.1.5 Setting the sensor and pump slots

Sensor input of storage tank top sensor

Module Address: 0 (0 - 9)

Sensor: 1 (1 - 6)

unitl now: 0.1
Default 0.1

SET DEFAULT SAVE CANCEL

The `Module address` and `Sensor` are selected in order to adjust the module slots of the sensors and pumps.

The values can be set within the defined range. In order to change the value, use the plus and minus icons as well as the text field. If the cursor is hovering above the text field, the value can also be changed using the mouse wheel.

The dialogue box contains information about the previous settings as well as the default settings.

When activating the `Set default` value function, the parameter is reset to its default value.

8.1.6 Setting the text parameters

The current designation can be changed in the text field. If a minimum and maximum length of the input is defined, a message appears if either requirement is not met or exceeded.

8.2 Overwriting inputs and outputs manually

User level: Service technician

8.2.1 Checking the Force mode

Parameter	Status	Action
Lambda probe heating	A Off	✎
Heating circuit pump 0	A On	✎
Standby relay	A Off	✎
Ash screw manual	A Off	✎
Pellet suction fan	A Off	✎
WGS-drive	A Off	✎
Ignition	A Off	✎
Fault message	A Off	✎
BBF manual	A Off	✎
Room air flap	A On	✎
Power supply to underpressure sensor cartridge	A Off	✎
Open grate	A Off	✎
Close grate	A Off	✎
PM suction unit control	A Off	✎
PM suction unit safety shutdown	A Off	✎
PM reserve OUT 2	A Off	✎

Only the force mode can be used in order to overwrite inputs and outputs. If the Force mode is activated, a Pencil icon appears next to the value and the latter can be edited.

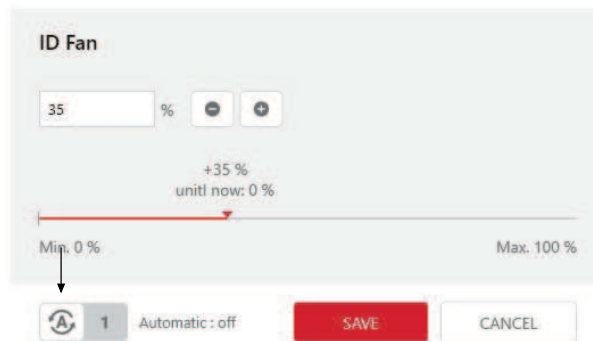
➡ "Forcing" [▶ 22]

8.2.2 Overwriting manually

Digital outputs can be switched on and off.



- Click the `Automatic` slider (1), and the automatic mode is set to `Off`
- Click the `Status` slider (2), and the current status changes



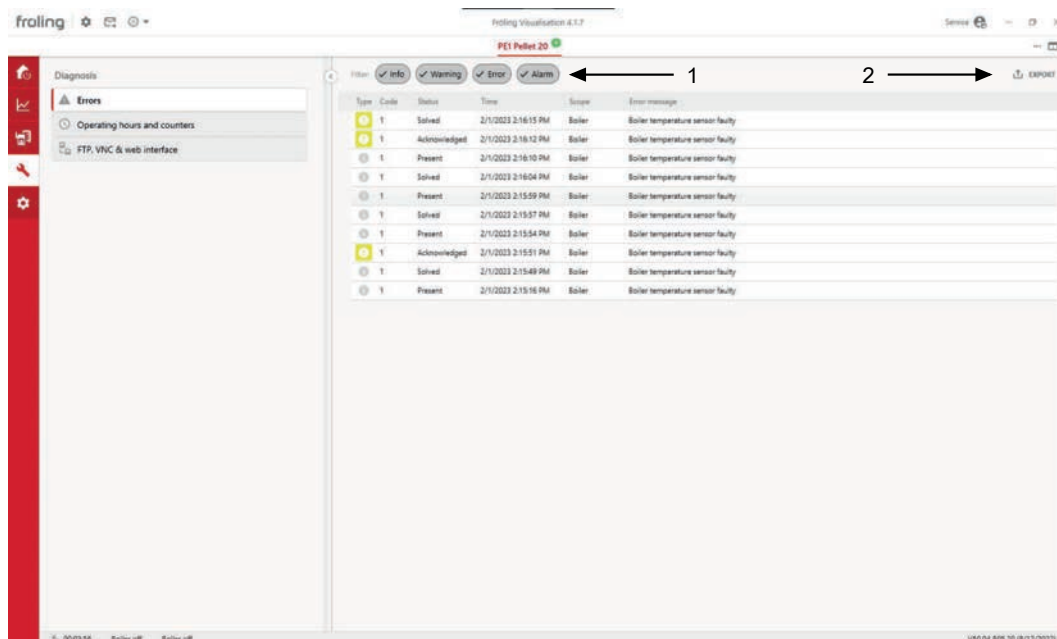
If using analogue outputs, a value can be set within the defined range. In order to change the value, use the slider, the plus and minus icons as well as the text field. If the cursor is hovering above the text field, the value can also be changed using the mouse wheel.

The dialogue box contains information about the previous value, the set value's deviation from the previous value, as well as minimum and maximum values.

Activating the automatic mode again, resets the changed values. When deactivating the Force mode, all overwritten values are reset to `Automatic`.

9 Diagnosis

9.1 System errors



All information, warning, error and alarm messages are listed. Since these are error logs, several entries can exist for one error (e.g., an entry with the status `arrived`, an input with status `acknowledged`, etc.).

9.1.1 Error list filter

- Select the filter (1) in order to reduce the display to one type of report

9.1.2 Exporting the error report

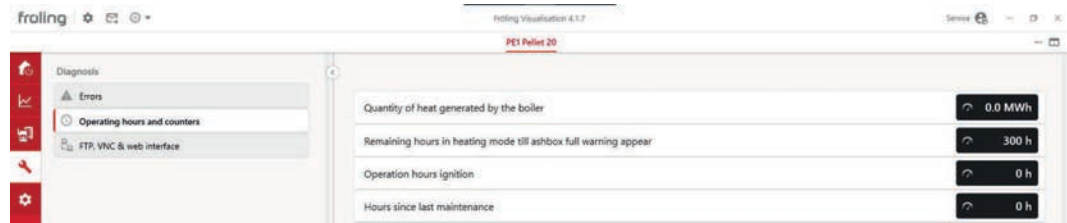
- Click `Export` (2) in order to export the entire report as a file

9.1.3 Sending the error report



- Exporting the error report
- Send the files by email
- ➔ ["Sending data via email" \[▶ 27\]](#)

9.2 Operation hours and counter



This view shows the operating hours and counter values of the system.

User level: Service technician

Values marked with a spanner icon can be edited.

Click the spanner icon to edit value.

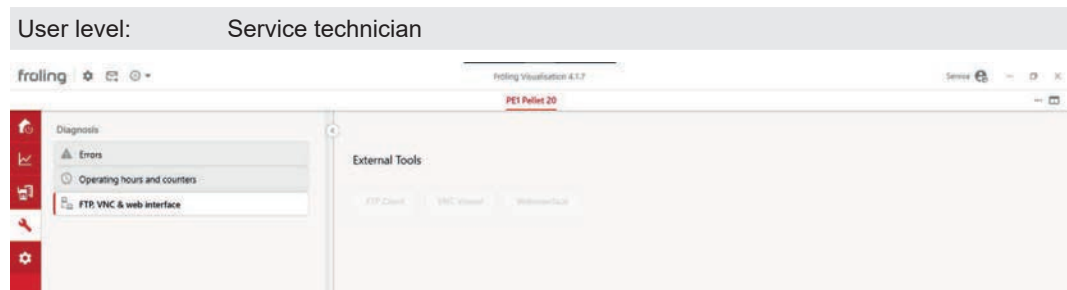
Sensor input of storage tank top sensor

Module Address: [-] [0 - 9]

Sensor: [-] [1 - 6]

unit! now: 0.1
Default 0.1

9.3 FTP, VNC & web interface



From here, third party applications can be started. A licence must be obtained to enable the feature. The paths of the third-party applications must be configured in the application settings.

➔ "External application" [▶ 33]

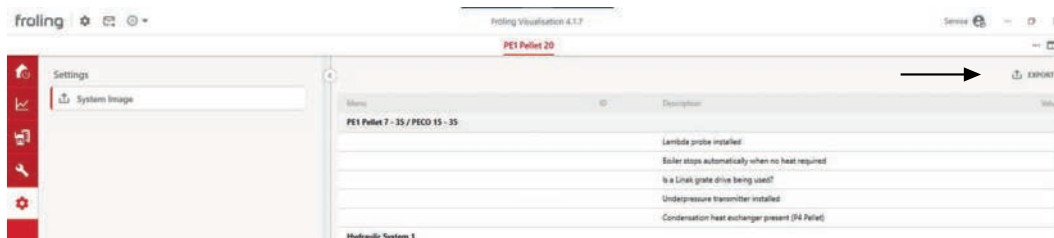
Note: A network connection is required to start the applications. This function cannot be used in serial connections. If necessary, a password prompt is required for the authentication.

- **FTP Client:** starts the FTP client and transmits the connection parameters.
- **VNC Client:** starts the VNC viewer and transmits the connection parameters.
- **Webinterface:** starts the web interface of the linked system.

10 Configuring the system

10.1 Exporting a system image

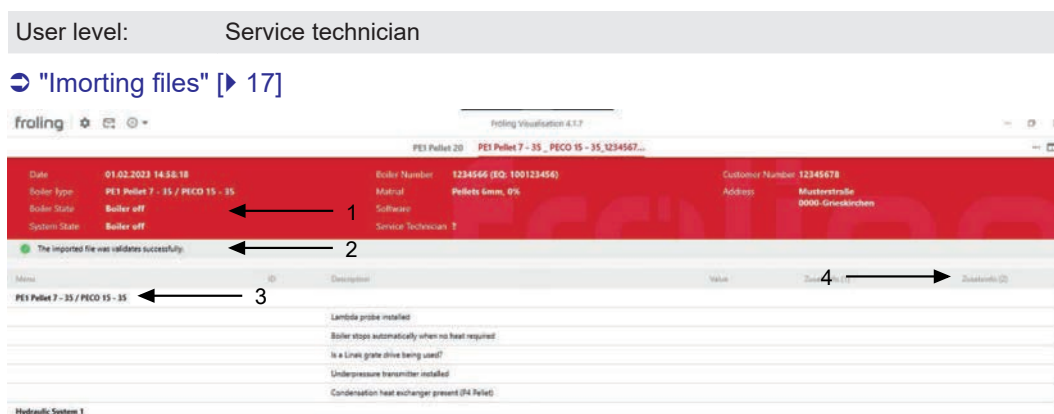
The system image lists all values and settings of the linked system.



☐ Click `Export` in order to save the entire image of the system

System images can be imported at any time in order to restore the status at the time of export.

10.2 Transferring the system image to the system



The following information is displayed for imported system images and error logs:

The header data (1) contains information about the installation and the operator who proceeded with the export. The validation result (2) is shown below. Three validation results are possible:

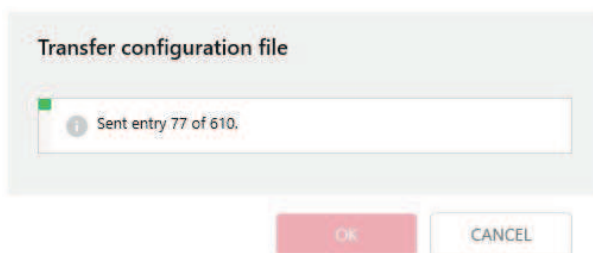
- **Successfully validated:** the file was not changed.
- **Validation failed:** the file was subsequently manipulated.
- **Validation not possible:** the file could not be validated for lack of information. This can occur in case of older exports or if exports are imported directly from the control system.

The table shows the file content (3), which is identical to the system configuration in this case.

☐ Click `transfer to system` (4) and select the system

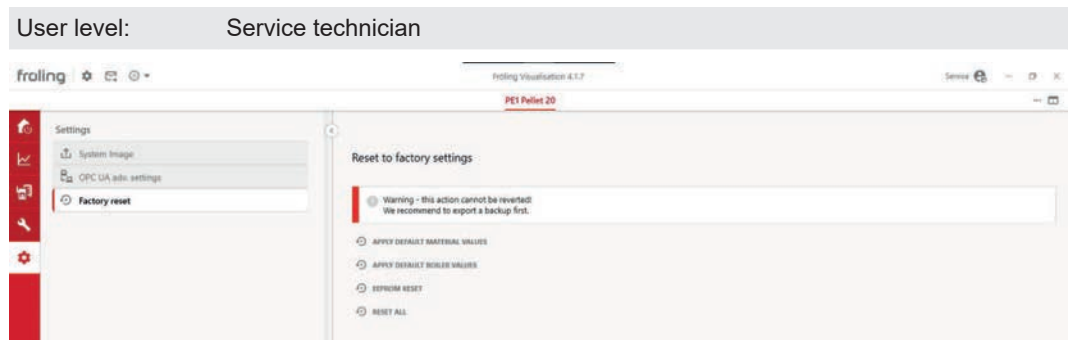


Click `Start transfer` in order to transfer the configuration onto the system



Note: The transfer of a system configuration are permanent and cannot be undone. It is highly recommended to export the system image of the connection before transferring another configuration onto the connection.

10.3 Factory settings



Factory settings of a smaller scope (e.g. `Apply material default values`) and larger scope (e.g. `Reset all`) can be carried out.

Note: Resetting to factory settings are permanent and cannot be undone. Before resetting, it is highly recommended to export the current system image. This menu is not available in all control types.

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