

Manual: QA Heating Circulation Pump Control

Smart switching of the heating water circulation pump only when the rooms really request heat — ON/OFF control according to the thermostat states.

Introduction

QA Heating Circulation Pump Control acts as an intermediary between the room thermostats and the heating water circulation pump. Based on the selected sections and rooms, the application automatically finds the relevant thermostats, periodically evaluates the difference between the measured temperature and the setpoint in each room and, based on the result, switches the pump on or off. This ensures thermal comfort and at the same time prevents the pump from running against closed thermostatic radiator valves — it saves energy and reduces the mechanical stress on the system.

The application can:

- switch the circulation pump (ON/OFF) according to the thermostat requests,
- select the output for the pump — a separate digital output in the unit, or an SSR / AO output of the EX01PV module,
- display the flow, return and outdoor temperatures on the main tile (for information),
- send alarm notifications when the flow temperature is too low (the heat source is not heating despite the command),
- cooperate with the global climate mode (winter / transitional period / summer),
- react to a manual thermostat change — the pump switching command is issued even outside the time schedule.

The application cooperates with Mervis SCADA for visualisation and with other QA applications of the Energy Management family — for spot prices, energy sharing, controlled wallboxes, DHW heating and more.

Upstream and downstream applications

Upstream applications

Mandatory:

- **Thermostats / actuators** in the controlled rooms, integrated in the unit.
- **Temperature sensors** for measuring the heating water flow temperature and the outdoor temperature (for the alarm logic); optionally a return temperature sensor (for display on the main tile).

Optional:

- **QA Global Climate Mode** — for control according to the heating season (winter / transitional period / summer).
- **QA Consumption Control (EMS)** — for coordination with other heat consumers and routing of PV surplus.

Downstream applications

- Switching element for the pump — one of two variants:
- **Digital output in the unit** assigned directly as a device, or
- **QA EX01PV** — one of the SSR / AO outputs of the module is used.

In terms of pump control, the application is the last link in the chain — the selected output switches the pump directly.

Installation and initial setup of the QA

Installation

Purchase the application in the Smart Home and Energy e-shop (<https://eshop.smarthomeenergy.cz>). After the purchase you receive an e-mail with a link to the activation form, in which you choose one of the two installation methods:

- **Installation via the SHE Installation Application (recommended)** — the activation form provides a link to download the Installation Application. Install it into the unit; it then automatically downloads and installs the purchased licences. It provides automatic updates of all applications and easy licence management (requires the “superuser” credentials for the unit). See the separate “Installation Application” manual for details.
- **Standalone installation file** — the activation form provides links to download an encrypted *.fqax file bound to the entered unit S/N. Install the file manually into the unit according to the unit manufacturer’s instructions (logged in as “superuser”). This option does not allow automatic updates.

After a successful installation, two application cards appear on the unit desktop in the **Climate** section — the main tile **Heating Pump Control** (status overview and mode selection) and **Installation** (configuration).

Operating prerequisites

- A Fibaro HC3 / HC3L or Yubii Home / Yubii Home Pro controller.
- **Thermostats / actuators** are installed in the controlled rooms.
- A **digital output** is available in the unit for switching the pump, or **QA EX01PV** with a free SSR / AO output is installed.
- For the alarm logic, **temperature sensors** for the heating water flow and the outdoor temperature are available in the unit.
- Users who are to receive the alarm notifications **have valid access to the unit**, so that they appear in the recipient list.

Opening the application control card

To open the application card in a web browser, move the cursor over the application tile and click the **eye** icon in the top-right corner of the tile. The card detail with the current state and settings opens.

Warning: Not all cards and tiles are displayed to all users. Each user selects which cards and tiles are displayed on the Display Settings card (sheViewControl application) – levels SHORT, ADVANCED and ADMIN. If you cannot see a described card, check the settings on this card.

User settings

The application has two cards on the desktop: the main tile **Heating Pump Control** (status overview and operating mode selection) and the **Installation** card (all configuration on a single card divided into sections).

Initial setup procedure

1. **Installation card** — select the controlled zones (sections, rooms, thermostats), assign the temperature sensors, choose the type and the specific output for the pump, and set up the alarm notifications.
2. **Heating Pump Control main tile** — choose the operating mode (typically **AUTO**) and monitor the displayed state.

Heating Pump Control card

The main tile of the application. It displays the current control state and allows you to select the operating mode.

Displayed values:

- **Control Mode** — current control mode.
- **Annual climate mode** — current state from the QA Global Climate Mode application (winter / transitional period / summer). If the QA is not installed or is not communicating, Error!!! is shown.
- **Temperature output / Temperature return / Outdoor temperature** — current measured temperatures from the assigned sensors (for information).
- **Pump Status** — current state of the pump output (On / Off / Error!).
- **Pump command** — current command issued by the application to the pump.
- **Heated rooms and thermostats** — list of the rooms and thermostats currently requesting heat.

Operating mode selection:

- **AUTO** — the application evaluates the thermostat states on its own and switches the pump on / off. The standard operating mode.
- **MANUAL-ON** — the pump is permanently forced on regardless of the thermostat states. For service purposes.
- **MANUAL-OFF** — the pump is permanently forced off regardless of the thermostat states. For service purposes or for periods when no heating is required (e.g. holidays).

Installation card

The card contains all the application configuration. Confirm every change with the **SAVE** button.

 **Warning: When saving settings, always wait until Run status changes to Running. Do not press SAVE before that.**

Device settings

This section is used to select the devices the application monitors and controls:

- **SECTION / ROOMS / CONTROLLED SCHEDULERS / THERMOSTATS** — cascading selection of the controlled zones. Based on the selection, the application automatically finds the thermostats and starts monitoring the difference between the measured temperature and the setpoint in each room. Only thermostats from the selected sections and rooms are offered.
- **HEATING TEMPERATURE OUTPUT** — temperature sensor measuring the temperature of the output (heating) water. Used for the alarm logic and for display on the main tile.
- **HEATING TEMPERATURE RETURN** — temperature sensor measuring the temperature of the return water. Used for display on the main tile (for information).
- **OUTPUT TARGET TYPE** — selection of the pump switching mode. Options: Disabled (no output is used for the pump), Device (the pump is controlled via the output selected below in the SWITCH PUMP field).

- **SWITCH PUMP** — selection of the specific output for switching the pump. The list offers the digital outputs of the unit and the SSR01–SSR05 / AO01–AO04 outputs of the EX01PV module (if present in the system). For installations with the EX01PV module, simply select the required SSR or AO output here — no further separate EX01PV setting is needed in this application.

Notification settings

This section controls the alarm notifications the application sends when a failure is suspected:

- **Boiler Temperature Min Alarm** — minimum expected heating water flow temperature. If the measured flow temperature is below this value and at the same time the outdoor temperature is low, the application sends a notification about a probable failure of the heat source.
- **Temperature Outdoor Enabling Alarm** — outdoor temperature threshold below which the insufficient flow temperature alarm is evaluated. Above this temperature the alarm is not triggered (the heat source may legitimately not be heating).
- **LIST OF NOTIFICATION USERS** — selection of the unit users to whom the notifications are sent. A user appears in the list only if they have valid access to the unit.
- **Notification period** — interval at which the notification is repeated while the failure persists.

Notes

- The application works directly with the thermostats, so the pump switching command also reacts to a **manual** thermostat change (outside the time schedule).
- If you want to put the pump out of operation temporarily (e.g. in summer or during servicing), use the **MANUAL-OFF** mode on the main tile.
- The **EX01PV** module is an optional alternative — use it if you already have it in the system for another reason (e.g. domestic hot water heating control). For customers without EX01PV, any digital output integrated in the unit is sufficient.