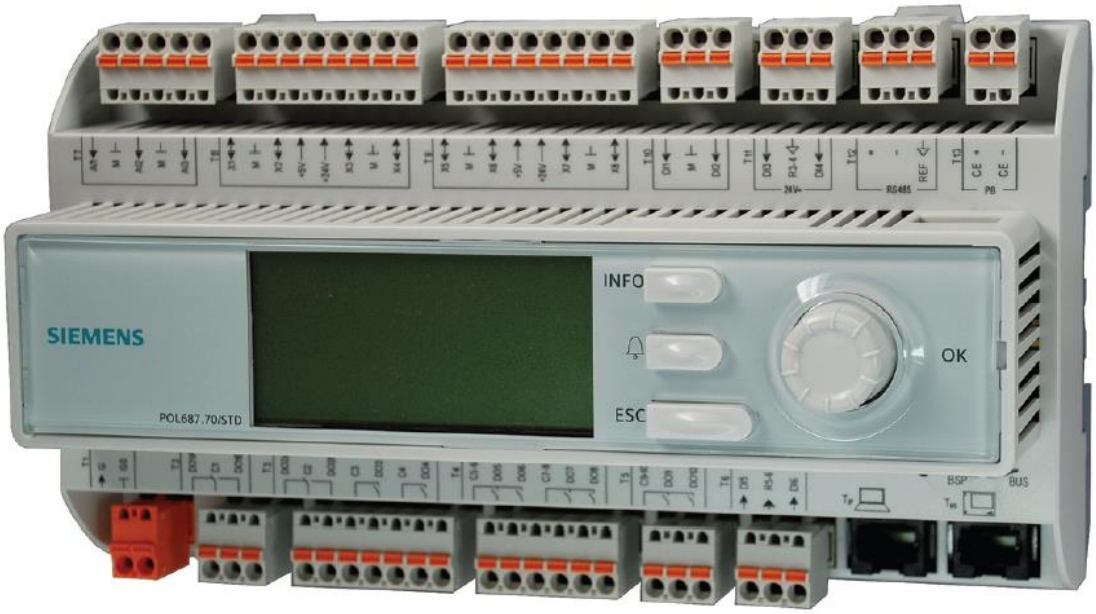
Cetetherm

IQHeat

User manual



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Contents

1 General

IQHeat is an intelligent controller for district heating and cooling substations.
Whether it is energy saving, energy cost reduction or comfort monitoring that is the goal, IQHeat from Cetetherm is an excellent choice.
IQHeat is fitted with a display.
Communication with the processing unit takes place with ModBus or TCP/IP.
Different methods of communication are available, depending on the external communication modules that are connected.

Add-on modules give you the option of

- meter data via MBus
- Integrated WEB server where all data and history from IQHeat is available through a simple web browser without requiring any special software or server connections
- BacNet and LON as well as ModBus give you the option of controlling IQHeat from the central building automation system.

IQHeat has always a temperature sensor on the primary side supply and return, and on the secondary side supply and return. The sensors allow for the effective limitation of return temperatures and simple monitoring and remote troubleshooting of functional or comfort problems.

IQHeat is always factory tested and factory set.

IQHeat are available in different models:

- IQHeat50: serves one heating circuit
- IQHeat60: serves two separate heating circuits
- IQHeat100: serves one heating circuit and one hot water circuit
- IQHeat110: serves two separate heating circuits and one hot water circuit
- IQHeat120: serves three separate heating circuits and one hot water circuit
- IQHeat50 Cooling: serves one cooling circuit
- IQHeat120: serves two separate heating circuits and one hot water circuit

This manual describes all the services, functions and settings that can be made with the processing unit, which is common to all models of IQHeat.

Not all of the services, functions and settings are utilised by the different models.

1.1 Information about this document

This document describes the built-in display, but all pictures are taken from the web interface.
Images in this document are general images.
Temperatures given in °K, degrees Kelvin, refer to a temperature difference.

1.2 Product overview IQHeat cabinets

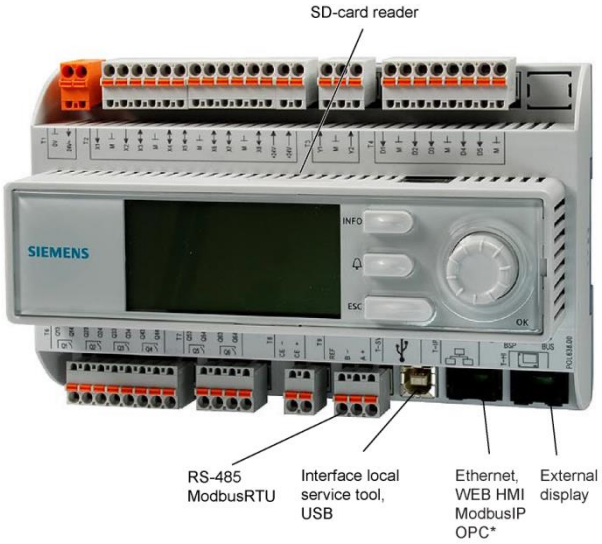
For information about the included components, see the respective product documentation.

1.3 DDC1; Processing unit with Display and TCP/IP interface

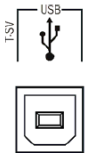
DDC 1, Processing unit is fitted with an integral control panel where the plant values can be read and set.

The processing unit has the following characteristics

- RS-485 ModBus RTU for third party bus
- full modem port RS-232 for remote service
- process bus for connecting room units and external control panel (DPSU)
- up to three additional communication modules for integration into the master system
- local service contact for control panel (RJ45) and PC tools (USB)
- SD card to upgrade applications and software versions
- Ethernet service port (remote or local) via standard web browser.



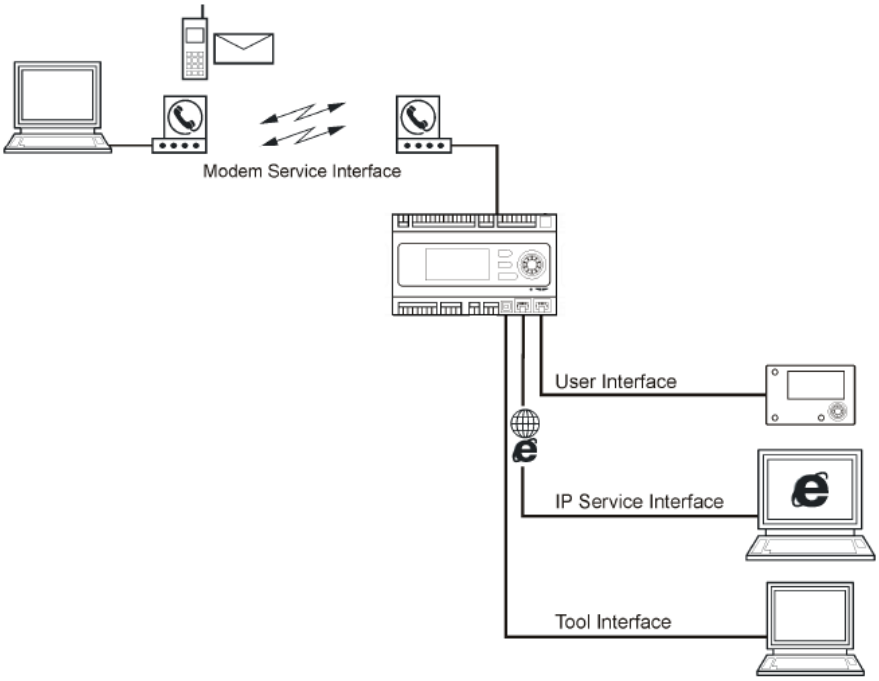
USB interface is of the type B output.



2 Communication principles

2.1 Internal Interface

A ModBus interface is always available in the processing unit. The RS485 interface can be defined as master or slave; if both master and slave are required, a communication module must be connected with ModBus. The TCP/IP interface is always the slave – both can be switched off.



2.1.1 LEDs for BSP and BUS diagnostics

The processing unit has two LEDs, BSP and BUS, for diagnostics. The LEDs can light with three different colours: yellow, green and red.
BSP indicates the status of the internal program in DDC1.
BUS indicates the status of the external communication.

LEDs for BSP and BUS diagnostics (green, red and yellow)

BSP LEDs Start/Stop

Mode	Status LED BSP
Software update mode (download of application or new software)	LED BSP lights every second alternating between red and green
No application is loaded	Yellow LED flashing, lights 50 ms and off 1,000 ms
Application loaded but is not in operation	Yellow LED lights
Application is in operation	Green LED lights
BSP error (software error)	Red LED flashes at 2 Hz
Hardware error	Red LED lights

BUS LED
This LED only indicates the status of the integrated modem communication.
The LED does not indicate the status of internal communication (for input/output modules or communication modules). This status is displayed on each expansion module.

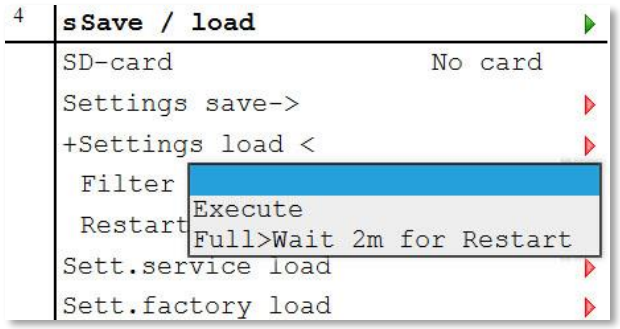
Mode	Status LED BUS
No modem connected, or LED disconnected	Off
Modem connected and initiated, but communication is not active	Yellow LED lights
Modem connected and communication is active	Green LED lights
Modem connected but is defective (as well as supply missing, initialisation is not possible)	Red LED lights

2.1.2 Upgrade with SD card

The processing unit can be upgraded with an SD card (FAT16 model, max 2GB). When upgrading, connect the SD card to the memory card reader at the top right side of the processing unit.
The upgrade requires logging in at service level.

There are two options for loading from SD card

- Apply - only control parameters loaded - recommended.
- Full - all settings given new values, including IP addresses and the like.



1. From the Main index select *Systemobjects*.
2. Select *Save/load* and press *OK*.
3. Select + *Settings load* < and press *OK*.
4. Select from
   - *Execute*- recommended
   - *Full> Wait 2m for Restart* - not recommended
5. From the menu Save/load
   select *Restart required!,* press *OK*.
6. Select *Execute* and press *OK*.
7. The new settings take effect after restart.

NOTE: Connecting and disconnecting during read and write privileges may lead to data loss.

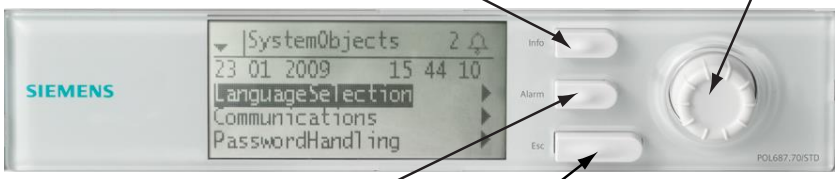
3 The control panel

All images in this document, in the menus in the control panel, are simply example images and should not be used as a basis for settings.

The control panel is integrated into the processing unit.

Info-button
Push to change between
`Main overview` and
`Main index`.

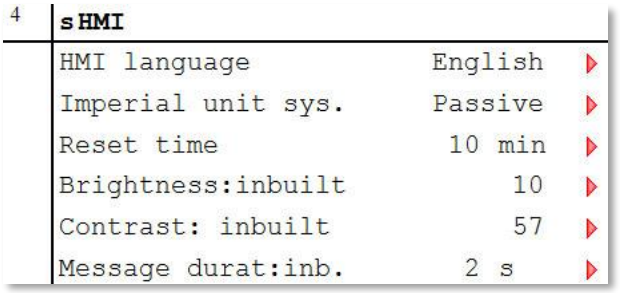
Select and OK knob
Turn to select menues, parameters and parameter values.
Push: to exit the setting page and adopt a changed value
Extended push: to go to the Password page



Alarm button with LED
Off: no alarm
Flashing: ongoing alarm
Permanently lit: Alarm ongoing and acknowledged
Press to to change between alarm menus

ESC-button
Push to go back to last active page or to cancel
Extended push: go back to the Main overvie w.

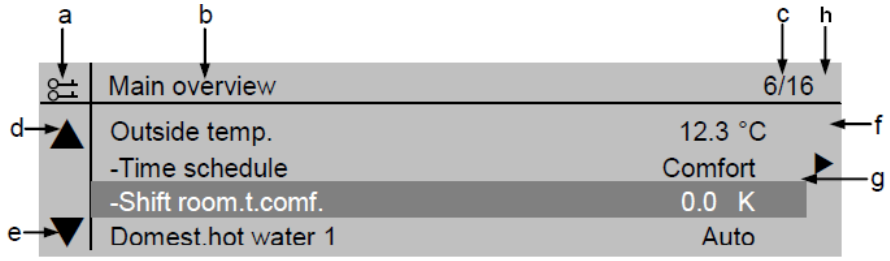
3.1 Display/HMI settings



1. Hold the ESC key down until the menu with HMI settings appears or from Main Index choose Systemobjects > HMI.
2. Select HMI settings to change and press *OK*.
3. Press *OK* to save the new setting.
4. Press *ECS* to return to the Main index.

Parameter	Settings range	Explanation
HMI language	English Svenska Suomi Polski Select	
Imperial unit sys.	Passive Active	Passive = imperial units e.g. °C.
Reset time	0…30 [min]	Login again is necessary after this time of inactivates.
Brightness: inbuilt	0…31	Display brightness.
Contrast: inbuilt	0…99	Display contrast.
Message durat: inb.	0…15 [s]	The time an error message is shown.

3.2 Display layout



a) current privilege level:
- no symbol - no privilege level
- one key - privilege level 6
- two keys - privilege level 4
- three keys - privilege level 2.

b) title for the displayed page

c) 7 - line number of the selected line
16 - total number of lines on the page

d) scroll arrow up - shows that the page contains additional lines above which appear when you scroll up

e) scroll arrow down - shows that the page contains additional lines below which appear when you scroll down

f) the arrow means that there are underlying levels below this level to go to

g) current line

h) Alarm indication

3.3 Various line types

Navigation bar:

A navigation bar displays the option on a black background when it is selected. The current value of the option appears in front of the navigation arrow.

Navigation:
- select the line: **turn the navigation dial**
- go to underlying level: **press the navigation dial**

Viewing bar:

A Viewing bar displays the option on a black background even when viewing in read-only mode. The current value of the option appears.

Settings bar:

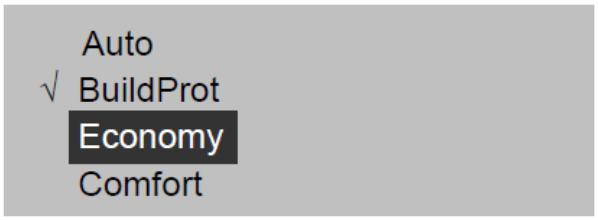
A setting bar shows the parameter name and the current value on a black background.

Setting value:

- select the line: **turn the navigation dial**
- switch settings page: **press the navigation dial**
- set parameter value: **turn the navigation dial**
- close the settings page and apply the changed parameter value: **press the navigation dial**
- close the settings page without applying the changed parameter value: **press ESC.**

3.4 Setting parameters

When only one value is selectable:

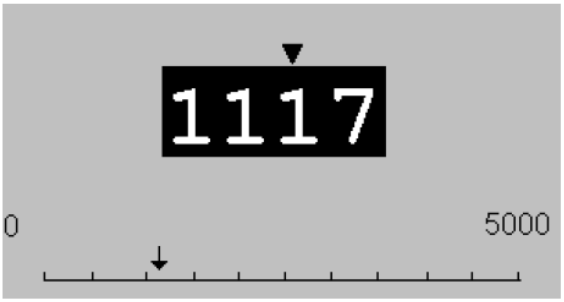


The line with a tick in front (Fire Set point) shows the set value

Change the value:

- select new value: **turn the navigation dial**
- apply the new value and close the settings page: **press the navigation dial**
- keep the old value and close the settings page: **press the ESC key.**

Setting analogue parameter values:



A scale displays the minimum and maximum values that can be set.

Change set value:

- change the value below the arrow: **turn the navigation dial**
- apply the new value and close the settings page: **press the navigation dial/OK**
- keep the old value and close the settings page: **press the ESC key.**

4 Log in and set the clock

4.1 Password and login

The controller has password protection, allowing access to different menus.
NOTE: For security reasons must the factory set password be changed the first time the IQHeat starts up.

The following log-in levels are available:

All users: no log-in, no password required

- read access to all menus except the system parameters, configuration and detail menus
- read access to alarm lists and alarm history

End user, level 6, password 1000

- appears with one key in the upper left corner of the display
- all rights as for in "all users"
- read access to all menus except configuration menus
- write access to the main set points (Setpoints/Settings. > Setpoints)
- alarms and alarm history can be acknowledged and reset

Service level, level 4, password 2000
Used for configuring I/Os and system settings. Only qualified service personnel should make changes at this level.

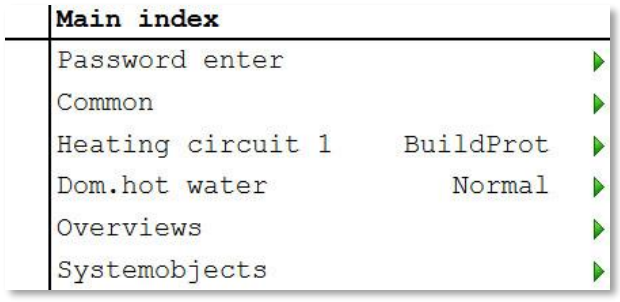
- appears with two keys in the upper left corner of the display
- all rights as for "End users"
- access to all menus except I/O configuration and system settings

OEM, level 2

- appears with three keys in the upper left corner of the display
- all rights as for System Administrator
- access to all menus and system settings.

Contact Cetetherm if there is a need to change anything at this level.

4.1.1 Log in



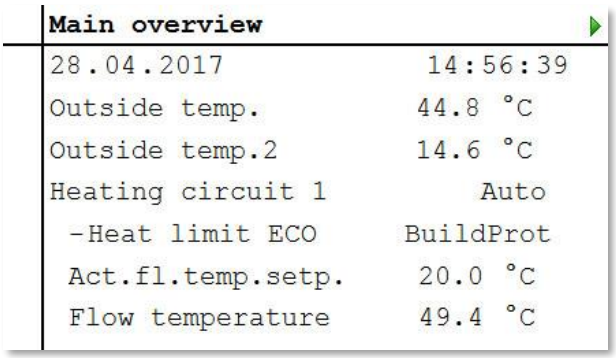
1. Keep the *OK* button pressed to access the Password menu.
2. The first digit of four is marked with 0.
3. Turn the navigation dial until the desired number appears.
4. Press *OK* to proceed to the next digit, continue until all four are entered correctly and press *OK*.

The current key symbol will appear in the upper left corner of the display window.

4.2 Time functions setting of time and date

The controller's clock includes the functions for summer and winter time changes and leap years. The clock has a backup function to cover at least 24 hours of power cuts.

4.2.1 Reading date and time



1. Press *Info* to access Main overview.
2. The top line shows the set date and time.

4.2.2 Setting date and time

Requires login at end user level.

1. Press *Info* until the page with the date and time are displayed.
2. Move the cursor to the line for date and time.
3. Press *OK* to edit the day.
4. Set the correct day with the navigation dial, press *OK* to confirm and continue to edit the month and year.
5. Continue to edit the hours, minutes and seconds in the same way.
6. Exit the menu with *ESC*.

5 Alarm management

The processing unit alerts for different situations. Alarms are indicated on the control display with the alarm symbol .

Alarms are divided into three classes:

- A or 1 = Alarm, High
- B or 2 = Alarm, Low
- C or 3 = Alarm, Warning

Active alarms:
- alarm symbol in the display flashes
- alarm button on the control panel flashes

Acknowledged but still active alarm:
- alarm symbol in the display lights
- alarm button on the control panel lights

If a GSM modem is connected to the processing unit, an alarm is sent by text message to the specified telephone number.

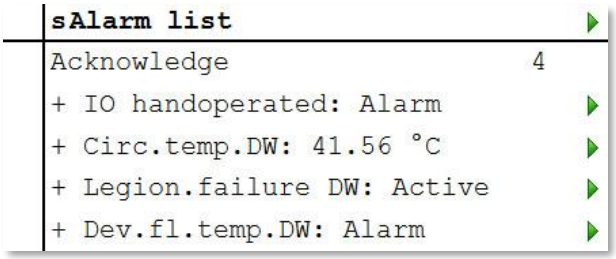
All incoming alarms generate an entry in the Alarm list and in Alarm history. When an alarm is no longer active, it will disappear from the Alarm list.
The Alarm history contains the same information about the alarm as the Alarm list, i.e. time and date when the alarm was sent. This also includes information on when the alarm was actioned. Incoming alarms are indicated by a plus (+) before the name, while actioned are indicated by a minus (-). When the Alarm list is empty, there should be as many + as – entries in the Alarm history.

5.1 Alarm list

The Alarm list contains all active alarms, acknowledged and unacknowledged. The Alarm list may contain up to 50 entries.
An alarm will remain in the Alarm list until it has been actioned.
The Alarm list menu has the option of selecting *Acknowledge* > *Execute*.
If *Execute* is selected, this means the alarm is confirmed**,** the Alarm button switches from flashing to steady light. All information about the alarms remains.

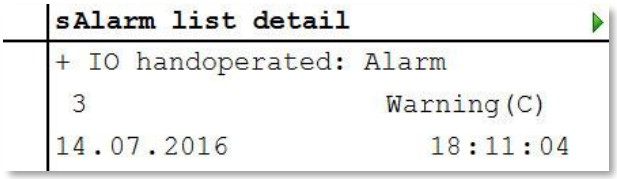
1. Press the *Alarm button* once to see the details about the last alarm.
2. Press the *Alarm button* again to access the Alarm list.
3. A list of all active alarms now appears.

All active alarms correspond to an entry in the Alarm list.



	Number of alarms that are active. In this example, 4.
+ Alarm name Ex + IO in manual mode	Status Alarm

4. To see detailed information about an alarm, select the desired alarm by using the navigation dial and press *OK*.
   All active alarms have the following information included in the Alarm list.

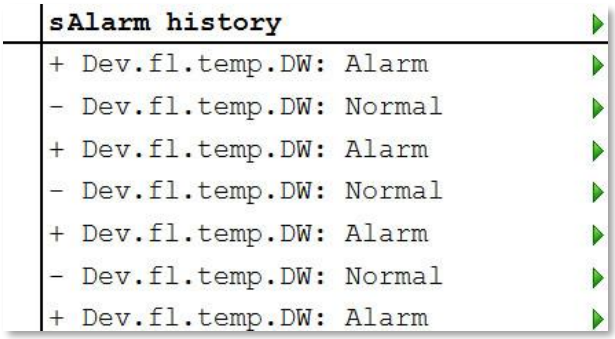


+ Alarm name	Status
Alarm class	Alarm class
Date	Time

5.2 Alarm history

The Alarm history may contain up to 50 entries.
Each new alarm generates an entry in the Alarm history list. Incoming alarms are indicated by a plus (+) before the name, while actioned alarms are indicated by a minus (-).

1. Press the *Alarm button* and choose *Alarm history* or press Alarm button three times to access the *Alarm history*.
2. All alarms, both active and actioned, are now listed.



	Number of alarms in the list.
+/- Alarm name	Status

3. To see detailed information about an alarm, select the desired alarm by using the navigation dial and press *OK*.

5.3 Settings

NOTE! Requires login at end user level
In the *Alarming*, under *Advanced*, you can see how many alarms there are in the Alarm list and Alarm history. Here you can also set the sort order for how alarms are presented in the Alarm list and Alarm history. Each list is set individually, so they may appear differently depending on the list that is opened.

Alarms can be sorted as:

- Sort 1:
  - Time
  - Obj.ID
  - Priority
  - State
- Sort 2:
  - Time
  - Obj.ID
  - Priority
  - State
- Descending order:
  - Passive
  - Active

NOTE: Resetting the Alarm list and/or Alarm history in the *Advanced* menu deletes the alarms from the lists. The alarm indicator remains but the information about the alarm is deleted.

5.4 Alarms and their classification

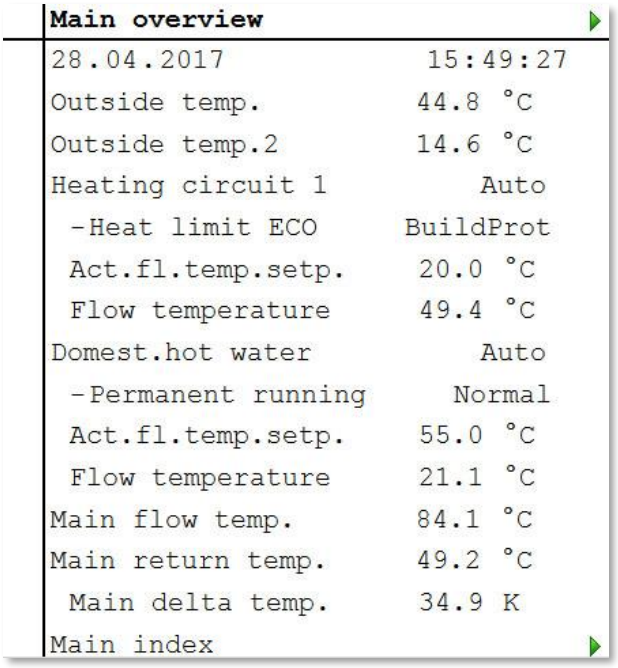
All sensors use function alarms that are enabled when, for example, there is a cable break or short circuit. On top of this, there are several different types of level alarms; high-level and low-level where the size of the sensors' level can be limited. These level alarms are filtered with a delay time.

A selection of alarms is displayed in the table below.

Designation	Name	Class	Remark
Pump heating circuit		A	Signal input from pump
Frost alarm	Level alarm	A	See description in point 2
Heating circuit, Supply	Function alarm sensor	A	
Hot water supply	Function alarm sensor	A	
Primary, Supply	Function alarm sensor	B	
Outside temperature	Function alarm sensor	A	Outside temperature is set to -1° C
Heating circuit, Return	Function alarm sensor	B	High level, high and low pressure
Heating circuit pressure/level	Level alarm, pressure	B	High level or high and low pressure
Temp deviation, Heat	Control deviation, heating circuit	B	Adjustable level and delay
Temp deviation Hot Water	Control deviation, hot water	B	Adjustable level and delay
HWC-temperature	Function alarm sensor, level alarm	B/B	Low level
Secondary circuit, Supply	Function alarm sensor	A	
Secondary circuit, Return	Function alarm sensor, level alarm	B/B	
Temp deviation Cooling	Control deviation cooling circuit	B	Adjustable level and delay

6 General functions

6.1 Reading the current temperatures and valve modes



1. Press *Info* to access *Main overview*.
2. Here you can see information about the connected heating circuit and hot water circuit.
3. Scroll down in the menu with the navigation dial.

6.2 Frost protection

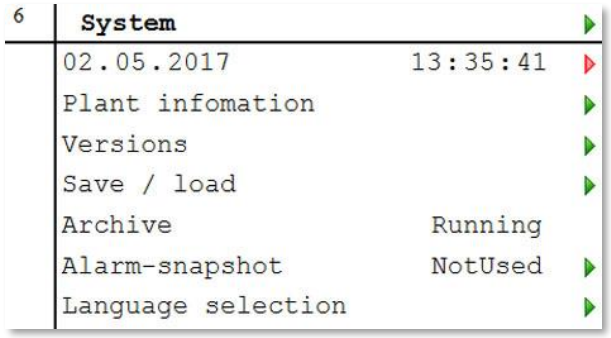
Regardless of the selected operating mode and settings for pump start and indoor temperature, the heat will be activated if the outside temperature drops below approximately +1.5°C (factory set).
This function is installed to protect buildings and heating systems from frost. The hot water circuit also has a frost protection function that cannot be turned off.
For each heating circuit and hot water circuit it is possible to set a range of temperatures to enable the frost protection.
If the pumps are turned off in manual pump mode, this function does not apply.

The frost protection for the plant works in two ways.

- If the outside temperature is lower than the set temperature Setp.plant frost about +1.5°C the pumps are activated every six hours for at least 10 minutes.
- If the outside temperature drops by 5° below the set temperature Setp.plant frost the pumps will run continuously.

6.3 System objects

NOTE: Access to the menys in this section requirer login at end user level.



6.3.1 Plant information

Information about the plant name, location address and versions of component parts can be read in the System parameters menu:

1. From the Main index select *Systemobjects*.
2. To read the name and location address select *Plant information*.
3. To check the current versions on connected parts, select *Versions*.

6.3.2 Restoring the start-up settings

For more information on start-up settings, see 9.5 Save and reset start-up settings and factory settings.

1. From the Main index select *Systemobjects*.
2. Select *Save/load* and press *OK*.
3. Select *Execute* and press *OK* to return to the start-up settings.

6.3.3 Language selection

Here you can set the preferred language for the display and snapshot.

1. From the Main index select *Systemobjects*.
2. Select *Language selection* and press *OK*.
3. Select preferred language and press *OK*.

7 Heating circuit

IQHeat gives you the option of making settings for various daily and weekly programs. These can be used, for example, as automatic night lowering of the flow temperature and thereby the indoor temperature.

The time program that appears under Common cannot be used to control the heating circuits.

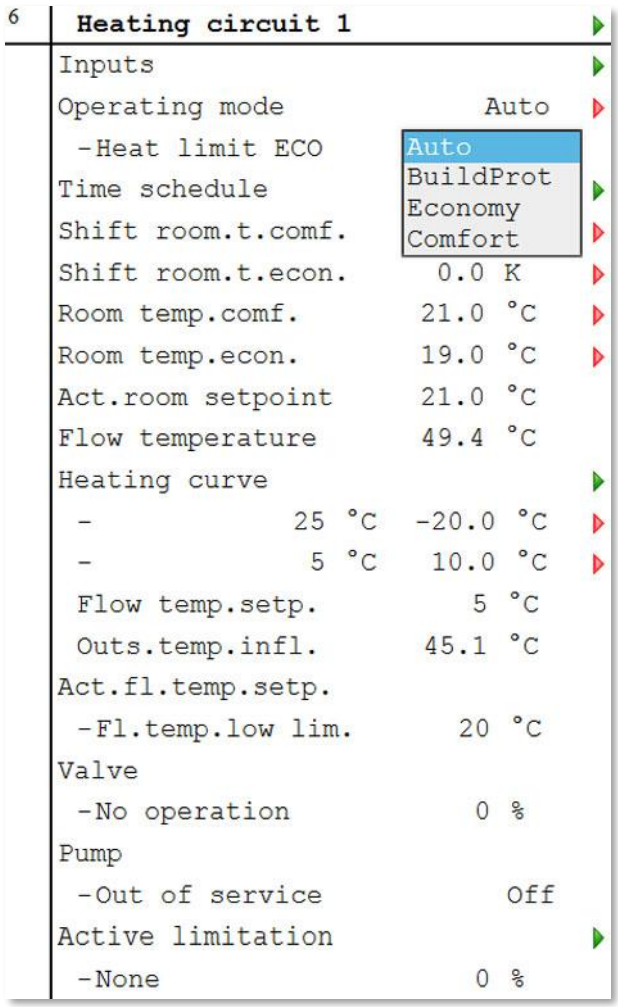
See also the description in Chapter 7.5 Heating Limit ECO.

The menus and setting options are the same for all heating circuits, which is why only one heating circuit 1 HC1 appears in these instructions.
NOTE: Access to the menys in this chapter requirer login at end user level

7.1 Operating mode heating

The heating circuit can be set in one of four operating modes:

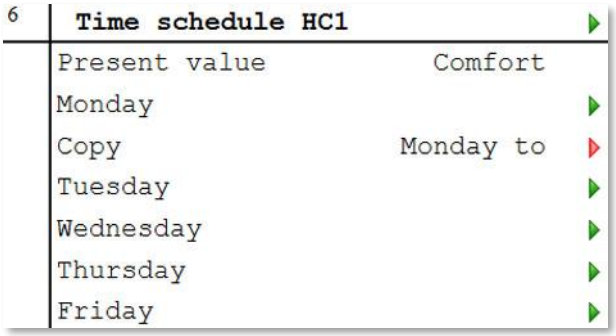
- Auto -the plant is controlled by the time program see 7.2 Heat time program.
- BuildProt - the plant is shut-down but is automatically started when the outside temperature is lower than the value for Set Plant frost (1,5°), see 9.3 Frost protection.
- Economy - plant uses set point Room temp eco.
- Comfort - plant uses the set point Room temp comf



1. From the Main index select *Heating Circuit1*.
2. Select *Operating mode* and press *OK*.
3. Select preferred operating mode and press *OK*.

7.2 Heat time program

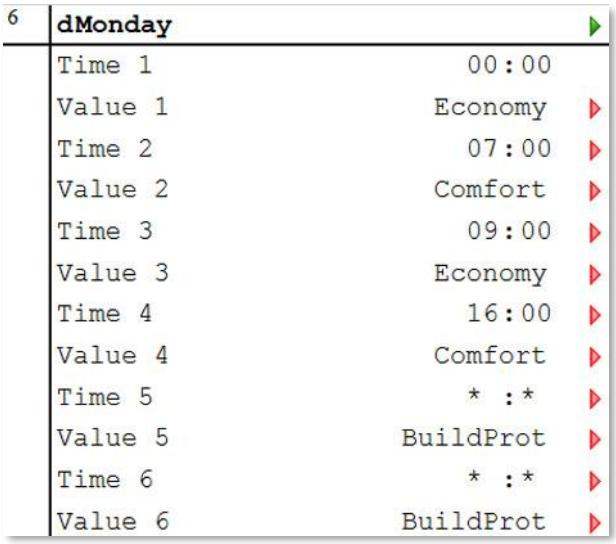
Each heating circuit can have six different time sets per day in the week. For each time, one of three modes; build protection, economy and comfort, can be selected that are then in effect until the next time occurs. If only one time is set, the circuit will always run with the selected mode.



1. From the Main index select *Heating Circuit*.
2. Select *Time schedule* and press *OK*.
3. Current value for the heating circuit appears here.

4. Select *Monday* and press *OK*.

NOTE: Time-1 is always set to 00:00. This cannot be changed.



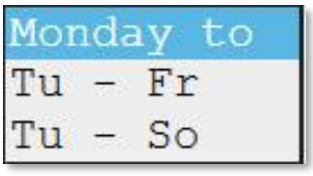
5. Use the navigation dial to select the desired values and transit times for Value-1-Value-6, and Time-2-Time-6. Confirm each selection by pressing OK.
6. Press *ESC* to exit the menu.

In the example, the current heating circuit on Mondays is in Economy mode from midnight, 00:00 to 7:00 when it switches to Comfort mode.

At 09:00 it reverts back to Economy mode and remains in this mode until 16:00 when it switches back to Comfort mode.

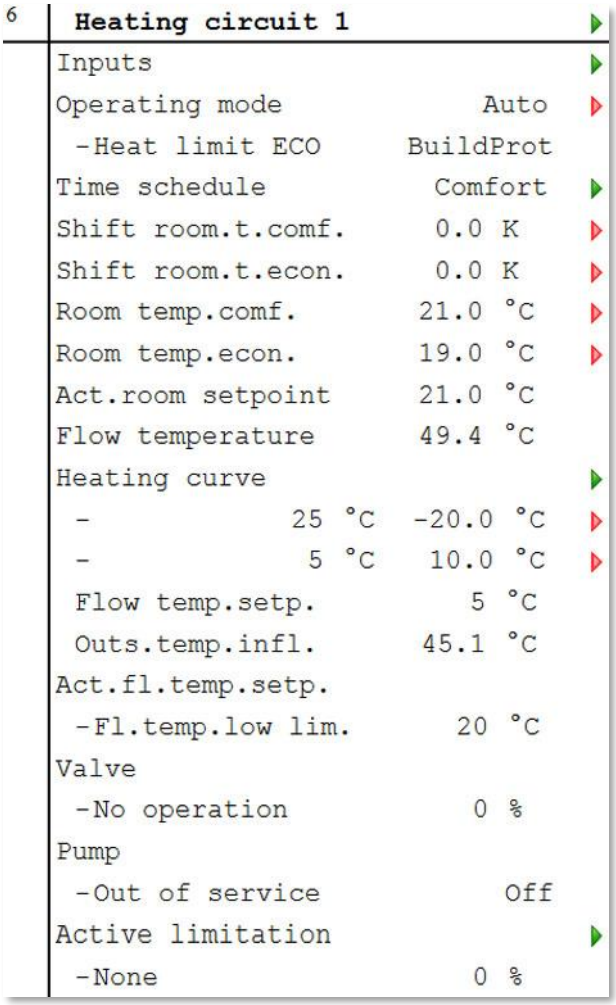
At 00:00 it goes into the mode that is set in the time program for Tuesday.

*: * means that the time is disabled.



7. When the Time program is set for Monday, it can be copied to other days.
8. Select *Copy Moday to* and press *OK*.
9. Select copy to:
   - weekdays, Tu-Fri
   - all week Tu-Sun.

7.3 Setting the value for the heating circuit

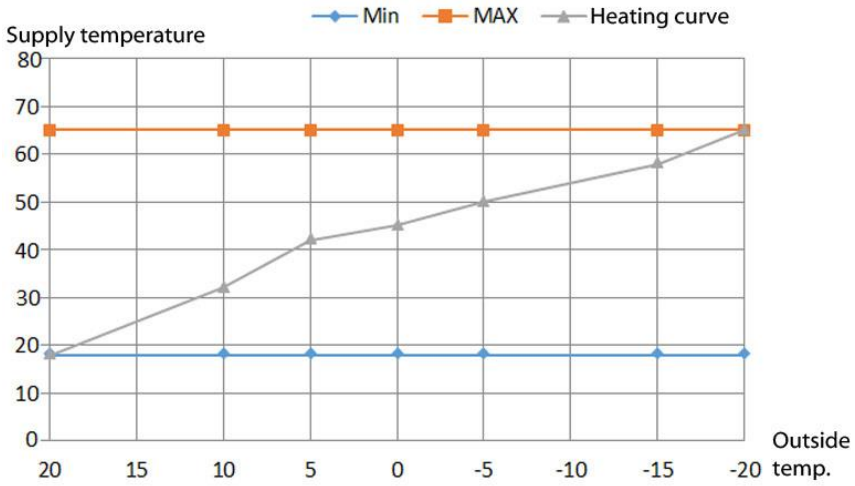


1. Press *Info* to access the Main index.
2. Select *Heating Circuit* and press *OK*.
3. Select the parameter to be changed and press *OK*.
4. Set the desired value with the navigation dial, press *OK*.

Parameter:	Settings range
Operating mode	• Auto • BuilProt • Economy • Comfort
Shift room.t.comf.	-12…12 K
Shift room.t.eco.	-12…12 K
Room temp.comf	20…50°C
Room temp.econ.	10…21°C
Heating Curve > Flow temp.design (P1)	25…130°C
Heating Curve > Setp.fl.temp.high (P5)	0…65°C

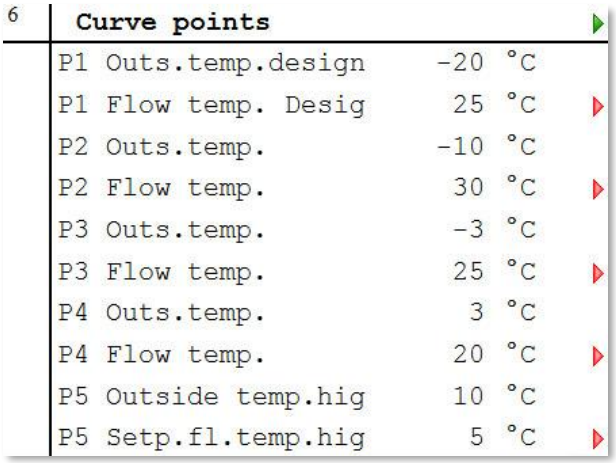
7.4 Setting the heating curve

The heat curve is a 7-point heating curve, where point 1 is a maximum limit and point 7 is a minimum limit. The five points, 2-6, is what forms the heating curve.
Points 2-6 can be adjusted at end-user level while adjusting points 1 and 7 requires logging in at service level.



The design outside temperature, X2, is determined by where in the country the substation is located.
X2 is set in service level.
The Y values of the curve depend on the building's insulation, exposure to wind and the dimensioning of the heating systems in the building.

A curve that is set too low means that the heat will not be sufficient, that the secondary flows are too high.
A curve that is set too high results in unnecessary energy losses and can lead to excess temperatures in parts of the buildings that are not adjusted for low flows.



1. Press *Info* to access the Main index.
2. Now select Heating *Circuit* > *Heating curve*, press *OK*.
3. In the Curve points menu select the parameter to be changed and press *OK*.
4. Set the desired value with the navigation dial, press *OK*.

Parameter:	Settings range	Relates to
Outs.temp. design (P1)		Design outside temperature
Flow temp. Design.(P1)	25…130°C	Flow temperature at P1, outside temp design
Flow temp, P2	0…130°C	Flow temp at outside temp. P2
Flow temp. P3	0…130°C	Flow temp at outside temp. P3
Flow temp. P4	0…130°C	Flow temp at outside temp. P4
Setp.fl.temp. high(P5)	0…65°C	Flow temp at outside temp. P5

7.5 Heating Limit ECO

The control has a built-in ECO function.
The ECO function ensures that heat is only started when needed. This means that savings are made for pump energy, and ensures that no heat is present on the radiator side when it is not needed.

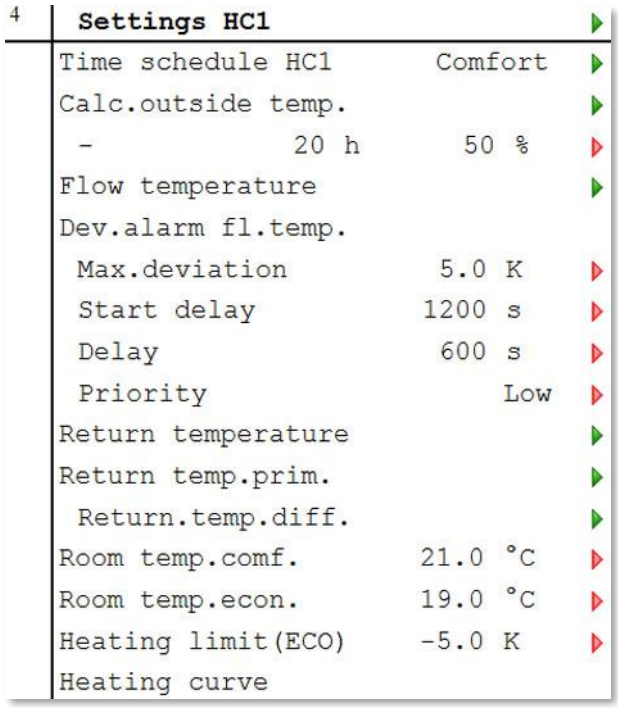
The temperature limit for when the heat is turned off is the result of the operating mode's set point minus the Heating limit (ECO).
Example:
The controller is in Economy mode and Room temp.eco.is set to 20 °C. Heating limit (ECO) is set to -5.0°C. When the outside temperature rises above 15°C (20-5) the heat is turned off.

The highest of the following values is used as input to compare with the heat limit:

- current outside temperature
- dampened outside temperature with standard building time constant (e.g. 20 hours)
- dampened outside temperature with summer-winter time constant (e.g. 70 hours)

This means that in summer, the current outside temperature temporarily drops during the night, without the heat going on.
As summer nights are short, this has no appreciable effect on comfort, but can save energy as heat does not switch on unnecessarily.

7.5.1 Setting Heating limit (ECO)

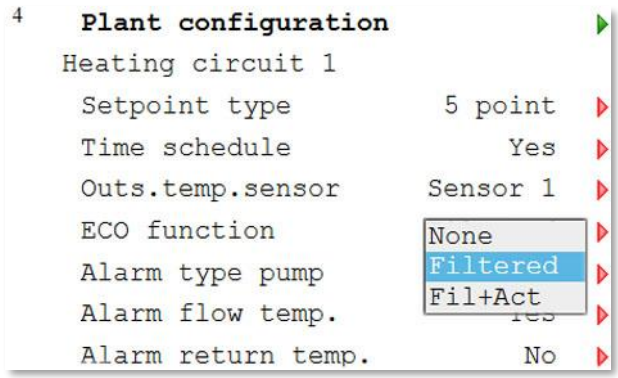


NOTE: Setting the Heating limit (ECO) requires logging at Service level.

1. Press *Info* to access the Main index.
2. Now select *Commissioning* > *Plant settings* > *Heating circuit1* or just choose *Heating circuit* in the *Main Index* menu.
3. Select *Heating limit (ECO)* and press *OK*.
4. Set the desired value, -20…0°C

7.5.2 Heat limit function

The temperature that is used as input data for the heating curve is called "use outside temp." The used outside temperature consists of a combination of the calculated (dampened by the construction time constant, for example 20 hours) and the current outside temperature. For quick changes it is appropriate to respond in part directly, without waiting for the full change of the estimated outside temperature.



NOTE: Activating the heat limit function requires login at Service level.

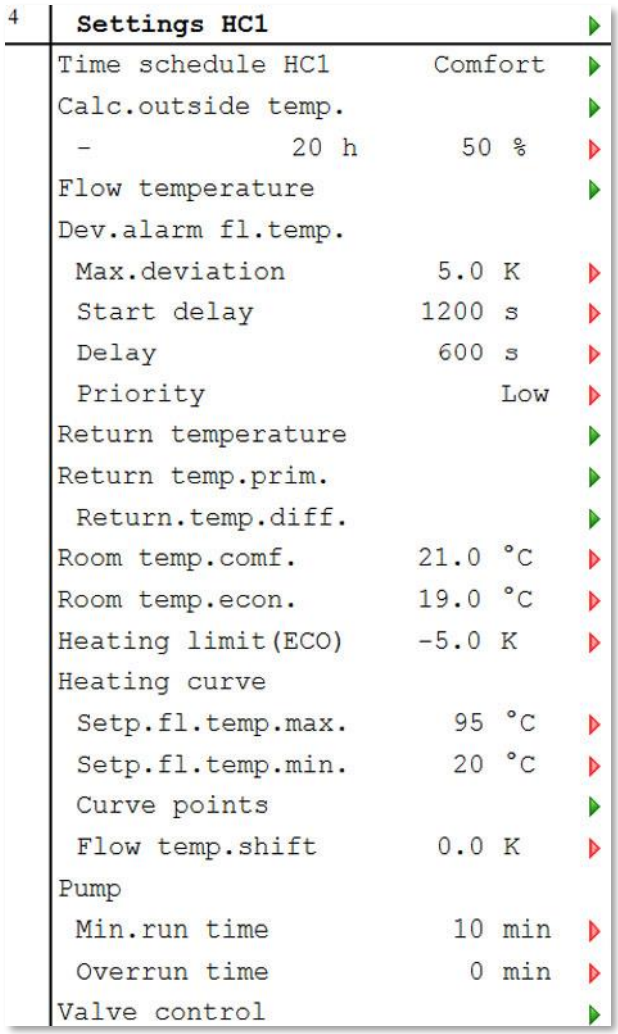
1. Press *Info* to access the Main index.
2. Now select *Commissioning* > *Plant Config* > *Heating circuit(s).*
3. Select the *ECO function* and press *OK*.
4. Select preferred mode and press *OK*.

Parameter:	Relates to
None	The ECO mode is not enabled, the heat is not shut off during the summer
Filtered	Average value forms the outside temperature
Fil+Act	The average value of the dampened outside temperature and the current outside temperature

5. Return to Plant Config.
6. Select *Restart*, press *OK*.
7. Select *Execute* and press *OK*.
8. The new settings take effect after restart.

7.6 Parallel offset of heating curve

The set heating curve can, if necessary, be parallel offset.



NOTE: Parallel offsetting of the heating curve requires login at Service level.

1. Press *Info* to access the Main index.
2. Now select *Commissioning* > *Plant settings.* > *Heating circuit.*
3. Select *Flow temp. shift* and press *OK*.
4. Select the number of degrees for parallel offset of the heating curve, -10°C…0°C, and press *OK*.

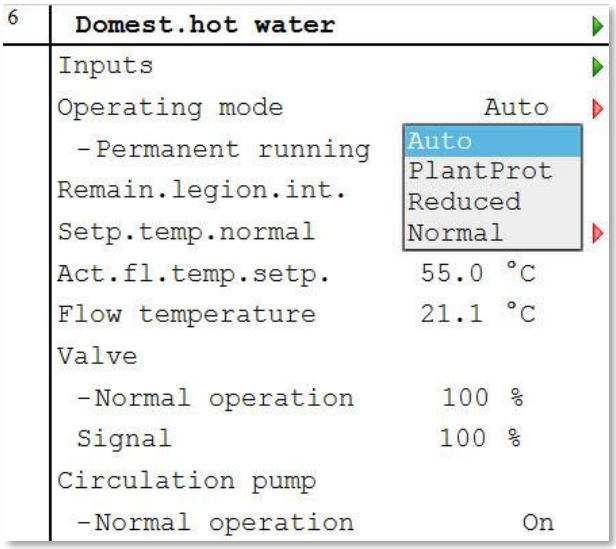
8 Hot water circuit

NOTE: All settings done in this chapter require login at end-user level.

8.1 Hot water operating mode

The hot water circuit can be set in one of four operating modes:

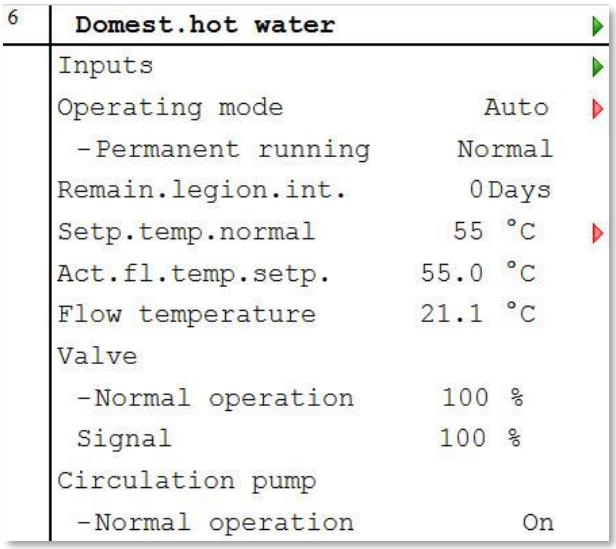
- Auto - plant uses the set Set point and can be controlled via an external communication interface. To activate the legionella function, you must select the Auto mode.
- PlanProt (Protective operation) - water is only heated if there is a risk that the water pipes might freeze
- Reduced - plant uses a reduced Set point. Reduced Set point can only be set if the hot water circuit has timing control.
- Normal - plant uses the set Set point.



1. From the Main Index, select *Domest.hot water* and press *OK*.
2. Select *Operating mode* and press *OK*.
3. Select preferred operating mode and press *OK*.
   - Auto
   - PlantProt
   - Reduced
   - Normal; recommended

8.2 Setting the set point for the hot water circuit

All countries have different rules for how hot or cold tap water should be.
Cetetherm recommends the hot water temperature is at least 55°C and a hot water circulation not less than 50°C.
At a temperature below 50°C there is a risk of bacterial growth.
Note that at temperatures above 60°C the risk of scalding increases.
Set points above 63°C result in an increased risk of precipitation of lime on the surfaces of the heat exchanger.



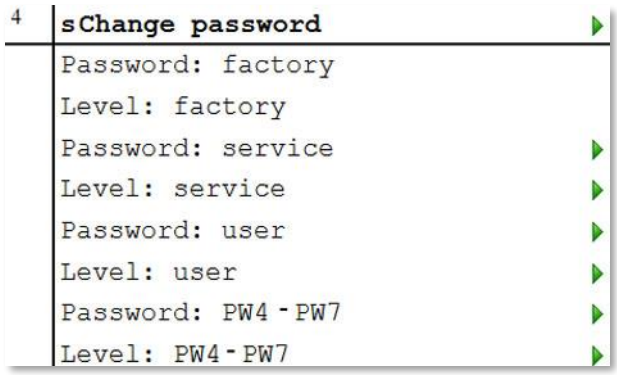
1. From the Main Index, select *Domest.hot water* and press *OK*.
2. Select *Set point temp*. normal and press *OK*.
3. Set the desired value using the navigation dial, press *OK*.

Parameter:	Settings range	Relates to
Set point temp normal	45…80°C	The set point is used in Normal and Auto operating modes

9 Service level

NOTE: The following settings and tests require logging in at Service level.

9.1 Change password



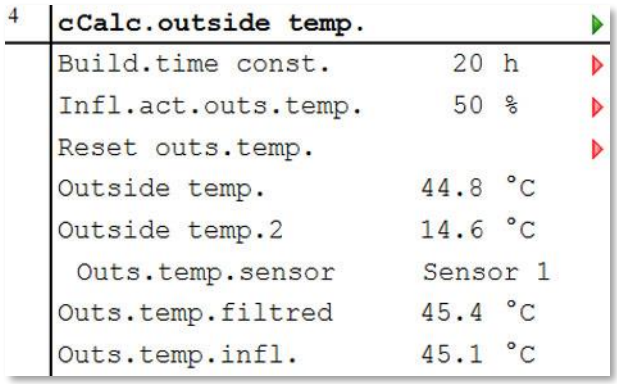
1. From the Main index select *Systemobjects*.
2. Now select *Password handling > Change password.*
3. Select the password to be changed and press *OK*.

9.2 Building time constant

Different building temperature inertia gives different sensitivity to rapid changes in the outside temperature. The inertia is affected by insulation, wall thickness, material and heating systems.
The value is used to calculate how the current outside temperature affects the indoor temperature, and thereby how the heating will be affected to provide the best comfort and economy. The building time constant is used to calculate the parameter "calculated outside temperature."

Typical values for setting the building time constant.

Thick walls, Stone building	30-60 hours.
Modern light building with good insulation	20-50 hours
Light building, thin insulation	10-20 hours

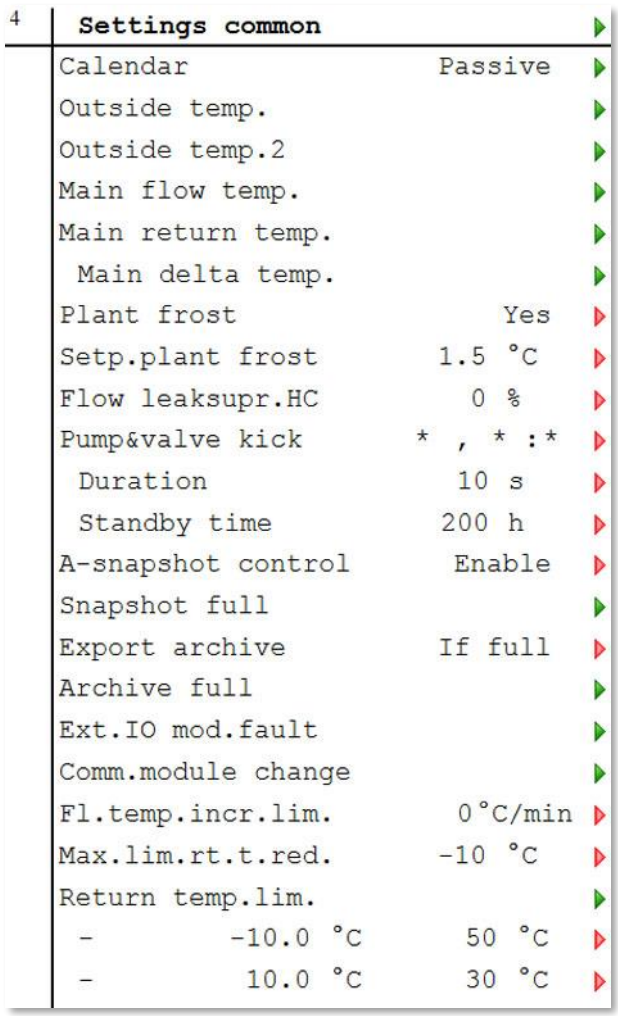


1. From the Main index select *Commissioning*.
2. Now *select Plant settings > Heating circuit 1 > Calc.Outside temp*.
3. In the Calc.outside temp. menu select the parameter to be changed and press *OK*.
4. After each parameter change, press *OK* to save the new setting.

Parameter	Settings range	Explanation
Build.time const	0…200 t	Building time constant
Reset outs.temp	Apply	Resets the dampened outside temperature, and sets it to the current outside temperature

9.3 Frost protection

The frost protection function can be switched off and on. You can also change the temperature Setp.plant frost.

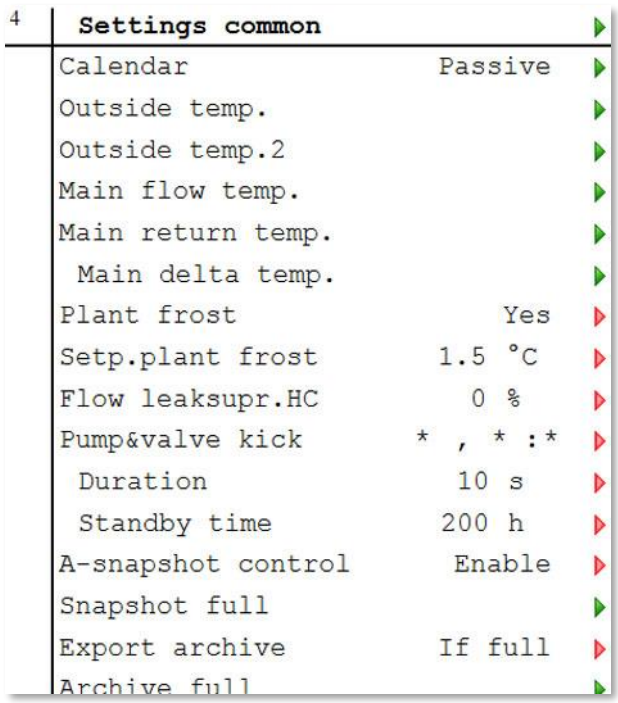


1. From the Main index select *Commissioning*.
2. Now select *Plant settings* > *Common*.
3. Select the parameter to be changed and press *OK*.
4. After each parameter change, press *OK* to save the new settings.

Parameter	Settings range	Explanation
Plant frost	Yes No	Enable frost protection for the plant
Setp.plant frost	-4…15°	At which the temperature function frost protection is enabled

9.4 Pump and valve exercising

The pumps are exercised to prevent them from "jamming" following long-term downtime. Exercising is active when the pumps are idle, if the downtime is due to the pumps being turned off by the ECO function, i.e. it is warmer outside than the ECO mode's set outT.
Exercising parameters can be set, for period time and duration. The factory setting is about 30 seconds running time, 1 time/week.
The pumps must have been idle for at least one hour before they can be exercised.



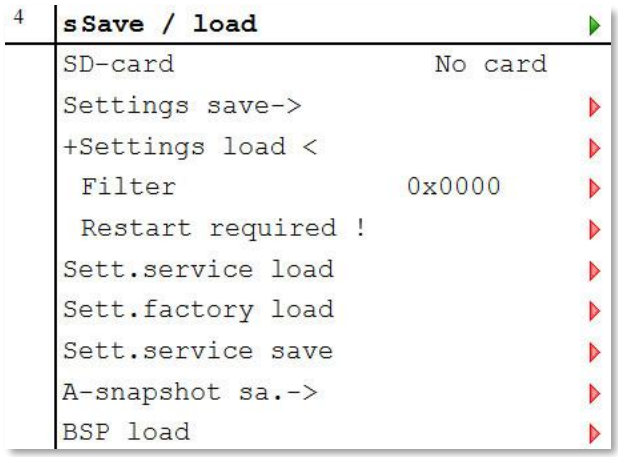
1. From the Main index select *Commissioning*.
2. Now select *Plant settings* > *Common*.
3. From the Common settings menu select the parameter to be changed and press *OK*.
4. After each parameter change, press *OK* to save the new settings.

Parameter:	Settings range	Explanation
Pump & valve kick	Mon-Sun, 00:00-23:59	Day and time for start E.g.: Mo, *. * > every Monday at 00:00 Sa, 07:00 > every Saturday at 07:00 *,*:* > exercising activated in ranges
Duration	0…200 s	Sets the time for exercising E.g.: 10 > duration of 10 seconds
Standby time	0…2000 t	Time between activation times E.g.: 168 > after 168 hours

NOTE: Pump & valve kick = *,*:* and
Standby time =0 means no pump exercising.

9.5 Save and reset start-up settings and factory settings

The first time IQHeat is started, the Service settings and Factory settings are the same.
After adjustment of the plant-specific parameters such as heating curve, time programs and the like, it is useful to save these settings for later use if something goes wrong.
The factory settings cannot be changed and they can only be restored from the service level, while the start-up settings can be restored at end user level.



1. From the Main index select *Systemobjects.*
2. Now select *Save/load.*
3. From the menu select the desired action and press *OK*.

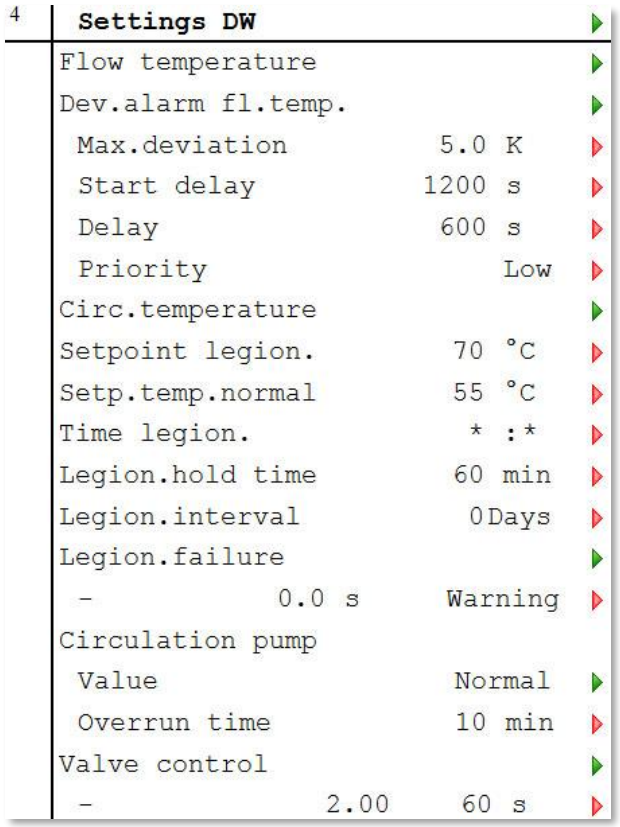
Sett.service load	Reset to saved settings
Sett.factory load	Reset to factory settings
Sett.service save	Save the set settings as start-up settings

4. Confirm with *Apply*.

9.6 Setting up and activating the legionella function

The legionella function is not enabled from the factory.
The set point for legionella must never exceed the temperature for district heating supply. If the legionella set point is set too close to or above the supply temperature, this may result in a fully open control valve and thereby large district heat flows.
Always check the supply temperature with the district heating supplier. This is especially important in the summer.

NOTE: The hot water circuit must be in the Auto operating mode for the legionella function to be enabled.

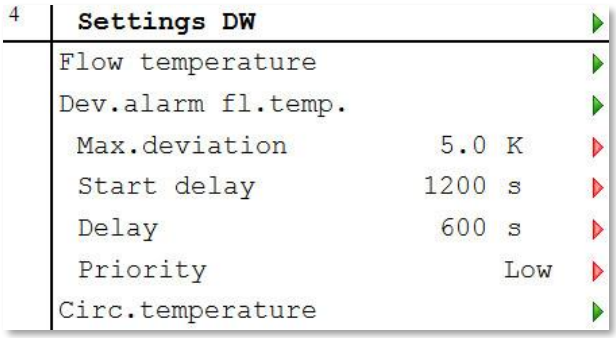


1. From the Main index select *Commissioning.*
2. Now select *Plant Settings > Domest.hot water.*
3. From the HW settings menu select the parameter to be changed and press *OK*.
4. After each parameter change, press *OK* to save the new settings.

Parameter:	Settings range	Explanation
Setpoint legion.	55…100°C	The hot water is raised to this temperature to prevent bacterial growth
Time legion.	00:00…23:59	Time when the function is enabled
Legion hold time	0…600 m	How long the function is active
Legion. interval	• 0-200 days	How often the function is to be enabled 0 = "Weekday X set" controls the function 1-200= Number of days between the activation of the function
Legion.failure	The type of alarm to be sent if the function fails.	
	• Plant.off (A) • Plant stopped. • Critical (A) • Plant shut down. • Low (B) • Affected part of the plant is shut down. • Warning (C) • Only message. • No alarm • No message, no alarm.	

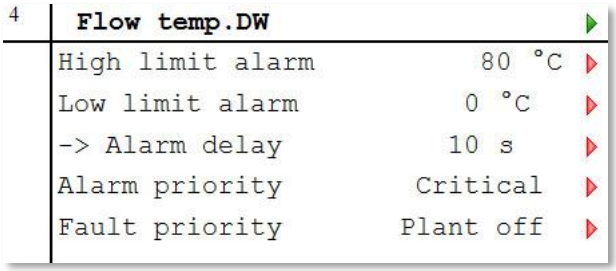
9.7 Change alarm limits for heating, cooling and hot water circuits

Alarm limits for flow temperature, return temperature and deviation alarms for flow temperature can be set per preferences.
The change is made in the same way as for heating, cooling, and hot water circuits.
Here the alarm change is described for the hot water circuit deviation alarm and alarm for the flow temperature.



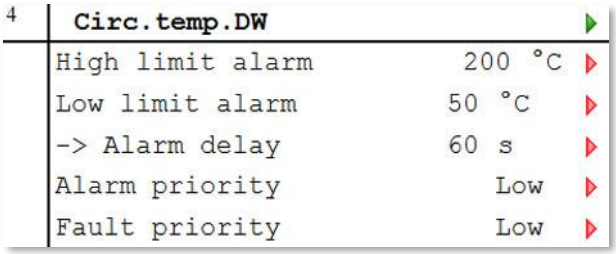
1. From the Main index select *Commissioning*.
2. Now select *Plant settings > Domest.hot water.*
3. Select the parameter to be changed, press *OK*.

Parameter	Settings range	Explanation
Max. deviation	0…50 K	Maximum difference between actual value and set point before an alarm
Start delay	0…36000 s	After the set time, the function is enabled after start.
Delay	0…65535 s	Time delay for high and low priority alarms.
Priority	• Plant.off (A) • Critical (A) • Low (B) • Warning (C) • No alarm	• Plant stopped. • Plant shut down. • Affected part of the plant is shut down. • Only message. • No message, no alarm.



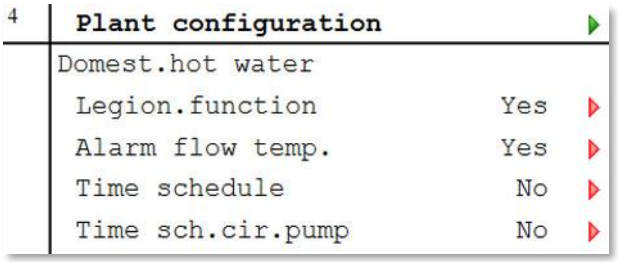
4. Select *Flow temperature*.
5. Select the value to be changed, press *OK.*

Parameter	Settings range	Explanation
High limit alarm	0…200°C	At which the temperature alarm is enabled
Low limit alarm	0…200°C	At which the temperature alarm is enabled
Alarm delay	0…18000 s	Time delay for high and low priority alarms.
Alarm priority & Fault priority	• Plant.off (A) • Critical (A) • Low (B) • Warning (C) • No alarm	• Plant stopped. • Plant shut down. • Affected part of the plant is shut down. • Only message. • No message, no alarm.



6. Use ESC and go back and select *Circ.temperature* and make the settings in the same way as for Flow temperatures.

9.8 Settings hot water circuit

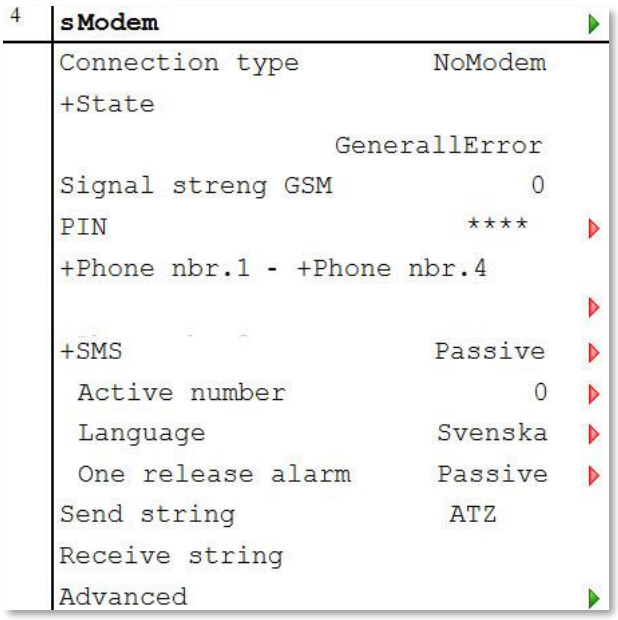


1. From the Main index select *Commissioning*.
2. Now select *Plant config> Domestic hot water*.
3. Select the parameter to be changed, press *OK*.
4. Return to Plant config.
5. Select *Restart*, press *OK*.
6. Select *Execute* and press *OK*.
7. The new settings take effect after restart.

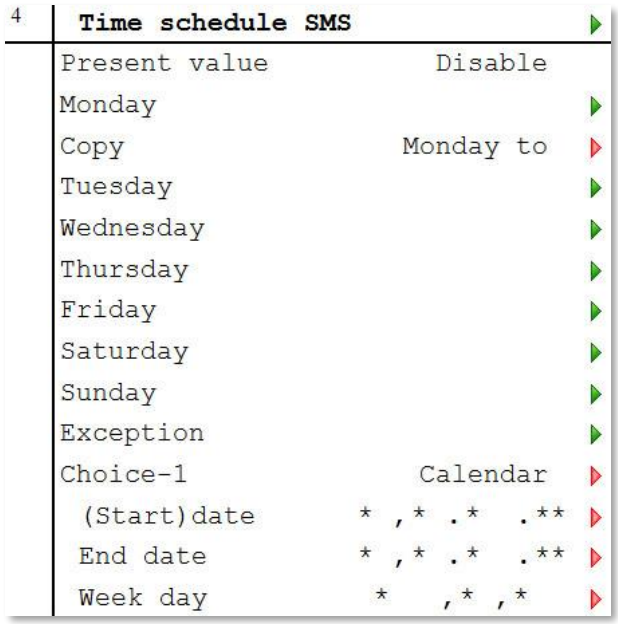
Parameter	Settings range	Explanation
Legion.function	• No • Yes • Circ. Pump	• Not active • Active • Legionella function with circulation pump is recommended
Alarm flow temp	Yes No	Activation of the deviation alarm
Time schedule	No Yes	
Time sch.cir pump	No Yes	No schedule Common schedule

9.9 System objects settings

9.9.1 SMS alarm



1. From the Main index select *Systemobjects*.
2. Now select *Communication> SMS > Settings*.
3. Here up to four different telephone numbers can be given for SMS alarms.
4. Press *OK* to save the new settings.



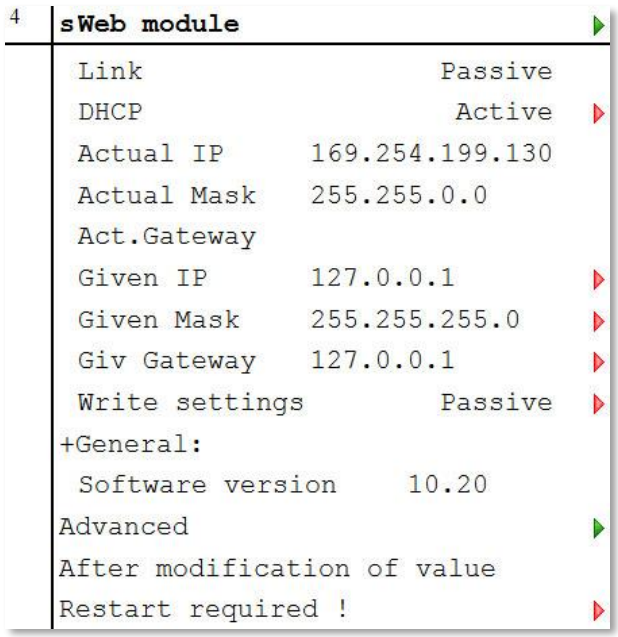
5. Go back to the SMS menu and select *SMS number.*
6. For information on settings made in the time program see 7.2.Heat time program.
   Instead of operating mode, the telephone numbers in time program for SMS numbers are listed.

9.10 Communication settings

9.10.1 Set IP address, IP mask and gateway for Advanced WEB module

If the communication module for IP/Ethernet is used, connect the accompanying TP cable to the output for Internet traffic. The communication module is set in DHCP mode i.e. it gets its address automatically from the server.
If a fixed IP address is used, this can be set via the Operator panel.

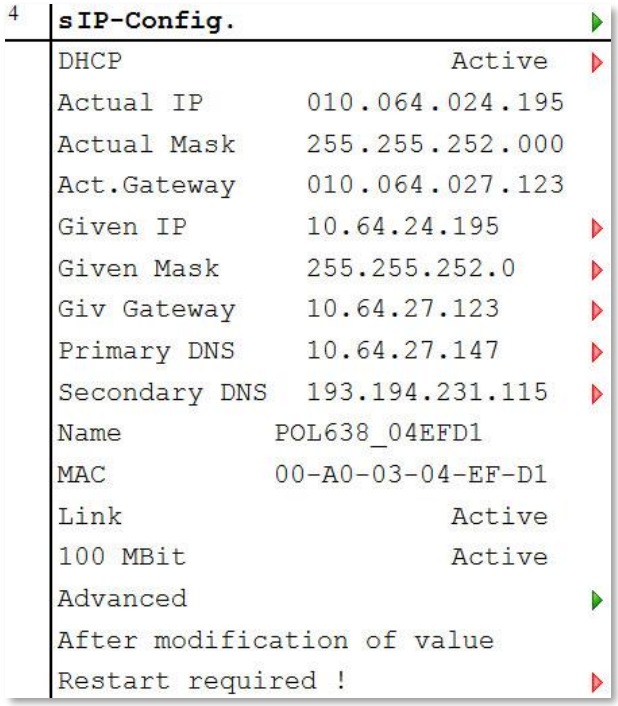
Here is a description of how to set the IP address. The IP Mask and Gateway are set in the same way.



1. From the Main index select *Systemobjects*.
2. Now select *Communication* > *Communic.modules* > *1-Web module*.
3. Select *Given IP* and enter the desired IP address.
4. Press *OK* to save the new settings.
5. Set *Write settings*. to Active.
6. Restart to activate the settings.

9.10.2 Set IP address, IP mask and Gateway for Web onboard

Here is a description of how to set the IP address. The IP Mask and Gateway are set in the same way.

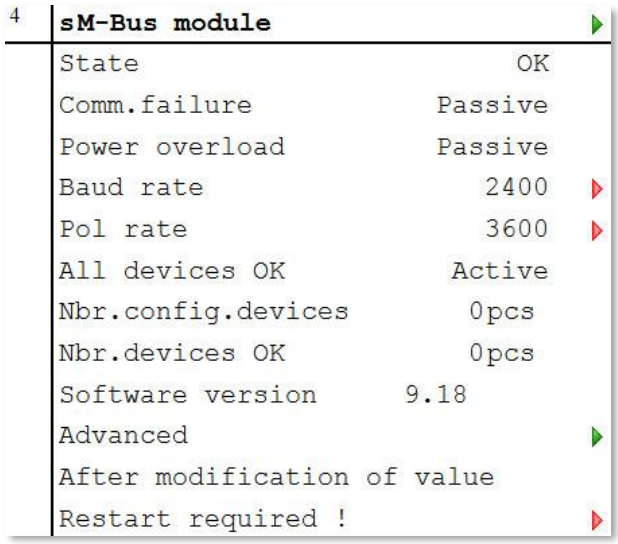


1. From the Main index select *Systemobjects*.
2. Now select *Communications* > *IP-configuration*.
3. Select *Given IP* and enter the desired IP address.
4. Press *OK* to save the new settings.
5. Restart to activate the settings.

9.11 Read and change the MBus parameters

To check that the serial number on the integrator matches the set address parameters in the processing unit. See *Main index* > Communication > Communic.modules > 2-M-Bus module.
Also, check that a value is received from the heat meter.

NOTE: The update times for the meter values from the integrator are based on the current flow, so when the primary flow is low, for example, in the summer, it will take a long time to update the measurement values.

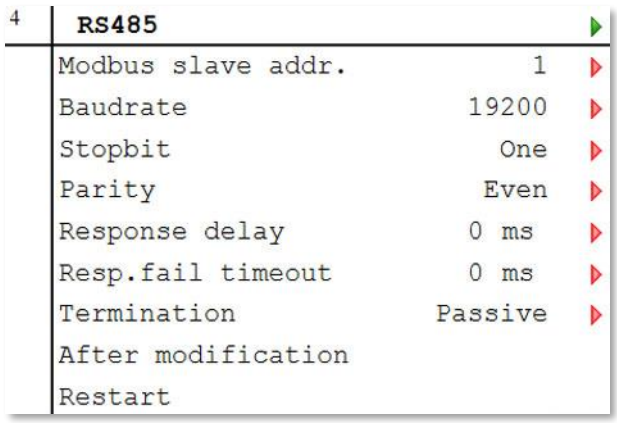


1. From the Main index select *Systemobjects*.
2. Now select *Communication > Communic.modules > 2-M-Bus module*.
3. Press *OK* to save the new settings.
4. Restart to activate the settings.

9.12 Read and change the ModBus parameters

9.12.1 RS485

To check and, if necessary, change so that the master unit uses the same address and parameter ModBus RTU (RS485).

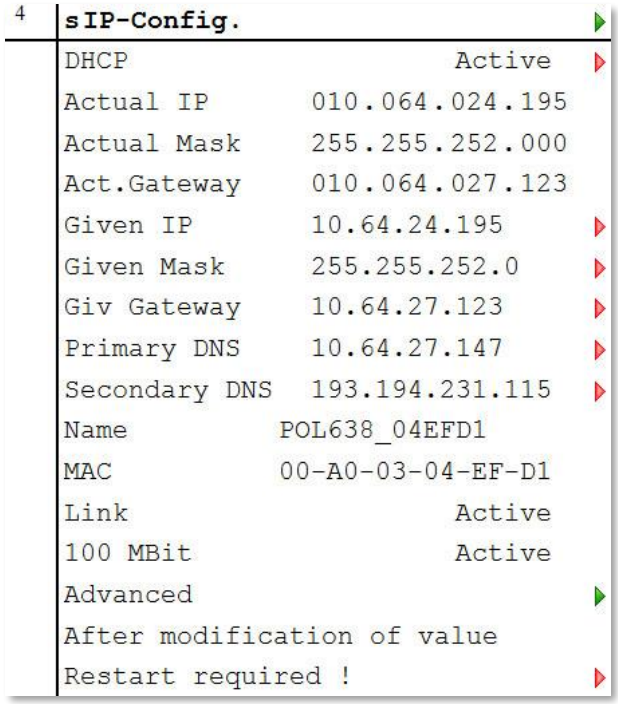


1. From the Main index select *Systemobjects*.
2. Now select *Communication > ModBus > RS485.*
3. Select the parameter to be changed, press *OK.*
4. After each parameter change, press *OK* to save the new settings.
5. Select *Restart*, press *OK*.
6. Select *Execute* and press *OK*.

The new settings take effect after restart.

9.12.2 TCP/IP

For ModBus across IP; check the address to the processing unit, and use port 502 in the master system.



1. From the Main index select *Systemobjects*.
2. Now select *Communication* > *ModBus* > *IP-Config.*
3. Select the parameter to be changed, press *OK.*
4. After each parameter change, press *OK* to save the new settings.
5. Select *Restart*, press *OK*.
6. Select *Execute* and press *OK*.

The new settings take effect after restart.

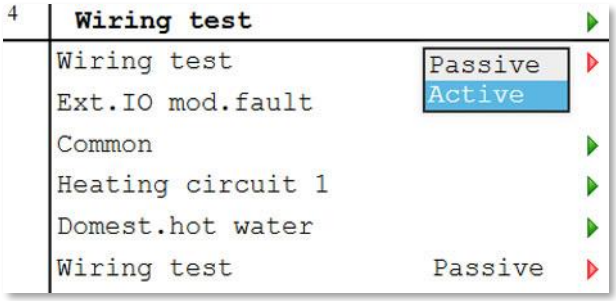
10 Tests

NOTE: All tests require login at Service level.

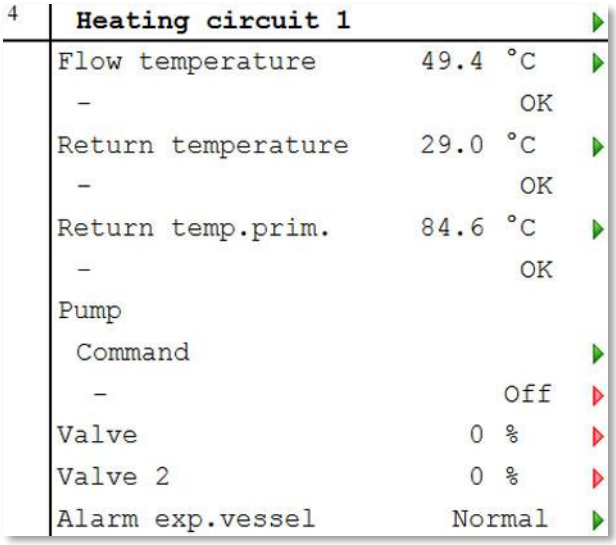
10.1 Testing the wirings

All cables are tested simultaneously.
The test shows whether the sensors with their connections are correct.

NOTE: Wiring test is active until it is set to Passive. For the control to work, the cable test in normal operation must be set to Passive.



1. From the Main index select *Commissioning*.
2. Select *Wiring test*.
3. Set Wiring test in Active mode, press *OK*.



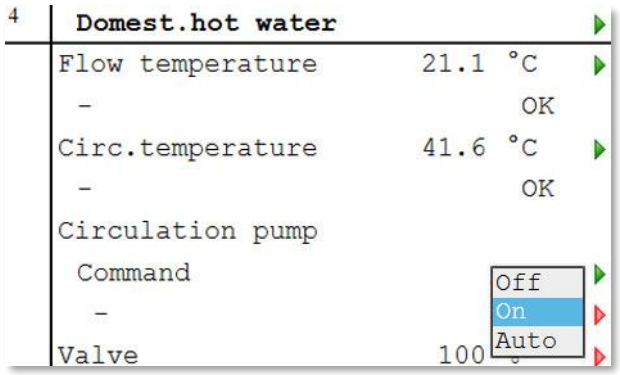
4. Read the test results by selecting Hea*ting Circuit 1* or *Domest. hot water*.
5. The cables were *OK* and this is indicated by the three OKs in the image opposite.
6. Wiring test is to be set to Passive after the test.

10.2 Testing the pumps

All the pumps are tested in the same manner. Here is a description of the test of the hot water pump. Wiring test must be Active when testing the pumps.
The test shows if the pumps and their control are correctly connected.

NOTE: Wiring test is active until it is set to Passive. For the control to work, the cable test in normal operation must be set to Passive.

NOTE: The pump must be manually put back into Auto or On mode after the test.



1. From the Main index select *Commissioning*.
2. Now select *Wiring test*.
3. Select *Heating circuit 1*or *Domest. hot water* depending on the pump to be tested.
4. Test the pump by putting the pump in one of the following modes:
   - on
   - off
   - auto.

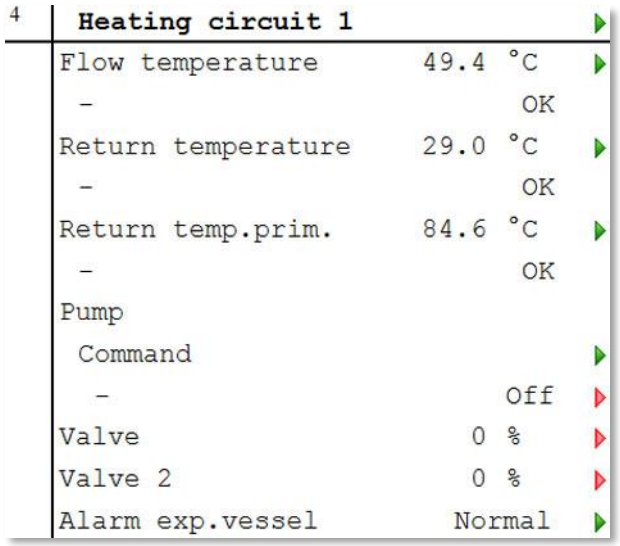
   Press *OK*.
5. After the test, the pump must be set in the same position as before the test.
6. Wiring test is to be set to Passive after the test.

10.3 Testing the valves

All the valves are tested in the same manner. Here is a description of the test of the primary circuit valve.
Wiring test must be active when testing the valves.
The test shows if the valves and their control are correctly connected.

NOTE: Wiring test is active until it is set to Passive. For the control to work, the cable test in normal operation must be set to Passive.

NOTE: The valve must be manually put back into the correct mode 0-100% after the test



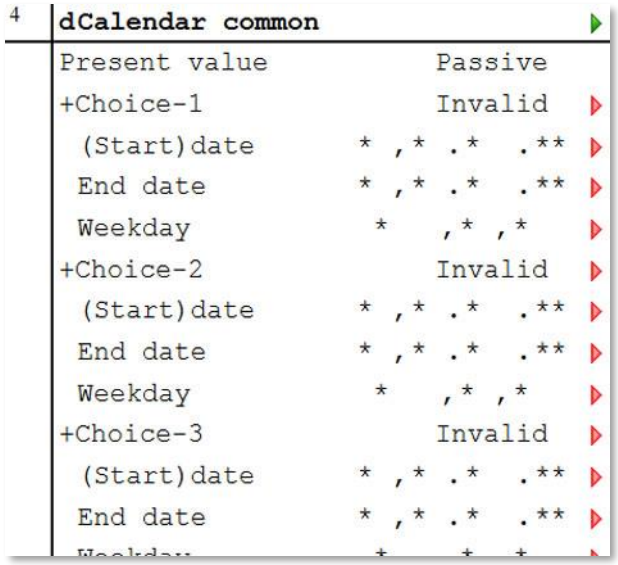
1. From the Main index select *Commissioning*.
2. Now select *Wiring test*.
3. Select *Heating circuit 1/2/3* or *Domest hot water* depending on the valve to be tested.
4. Test the valve by changing the percentage for the valve. Range 0-100%
   Press *OK*.
5. After the test, the valve must be set in the same position as before the test.
6. Wiring test is to be set to *Passive* after the test.

11 Exceptions calendar

11.1 Exceptions calendar

Exception days can be defined in the Calendar contained in the Common menu. The calendar controls the exceptions that can be selected in the Time program for the heating circuits and cooling circuit.
These may include specific dates, periods or weekdays. Exception days override the weekly schedule. Switching is done per the weekly schedule and the exceptions are specified in the daily schedule when a switching time is enabled on the exception calendar.
The plant is turned off when a Calendar stop is enabled.

NOTE: To change in the exception calendar login at End-user level is required.



1. From the Main index select *Common*.
2. Now select *Calendar*.
3. Select the parameter to be changed and press *OK*.
4. After each parameter change, press *OK* to save the new settings.

Para-meter	Factory settings	Settings range	Relates to
Choice-1... Choise-10	Invalid	• Date • Range • Weekday • Invalid	Specification of exception-type: – On any given day (e.g. Friday). – A period (e.g. holiday). – A certain day of the week. – Times are disabled. This value should always be placed last, after date.
(Start) Date	* ,* .* .**	* ,* .* .** • Mon…Sun • 01…31, ld • Jan...Dec, uneven even • 1…99	Sel x = range: Enter start date for the period. Sel x = date: Enter specific date.

Parameter	Factory settings	Settings range	Relates to
End date	*,*.*.**	*,*.*.** • Mon…Sun • 01…31, Id • Jan...Dec, uneven even • 1…99	Sel x = range: Enter end date for the period. The end date must be later than the start date.
Weekday	*,*,*	*,*,* • 1st ... 5th, last • Mon…Sun • Jan...Dec, uneven even	Sel x = weekday: Enter weekday.

Example Sel-x = Date; only time (for start) is relevant.

- - (Start) Date = *, 01.01.09
  Results: 1 January 2009 is an exception date.
- - (Start) Date = Mon,*.*.00
  Every Monday is an exception day.
- - (Start) Date = *, *. Even.00
  All days in even months (February, April, June, August, etc.) are exception days.

Examples Sel-x = range, the times for (Start) Date and End date are applied.

- - (Start) Date = *, 23.06.09 / -End date = *, 12.07.09
  June 23, 2009 through July, 12 2009 are exception days (e.g. holidays).
  - (Start) Date = *, 23.12.00 / - End date = *, 31.12.00
  December 23 to 31 is the exception period each year. Time End date = *, 01.01.00 does not work as January 1 occurs prior to December 23.

- - (Start) Date = *, 23.12.09 / End date = *, 01.01.10.
  December 23, 2009 through January 1, 2010 are exception days.

- - (Start) Date = *,*.*.00 / -End date = *,*.*.00
  Warning! This means that exceptions are always active!
  The plant is continuously in exception mode or disconnected.

Examples Sel-x= weekday, times for weekday are applied.

- Weekday = *, Fr,*
  Every Friday is the exception day...
- Weekday = *, Fr, Even
  Every Friday in even months (February, April, June, August, etc.) are exception days.

Weekday = *,*,*

Warning! This means that exceptions are always active! The plant is continuously in exception mode or disconnected

12 Services for IQHeat

Cetetherm has developed several services to be able to offer enhanced functionality for the substation. Cetetherm works continuously on developing new functions and improving old ones, to simplify the handling of IQHeat and provide the ability to monitor and optimise plants.
Good comfort and lower energy consumption can be combined and monitored using IQHeat.

Many functions are always included in an IQHeat. In addition to factors such as internal display, ModBus communications, easy WEB and pump control, there are several other functions that come with the basic package.

Services related to an additional hardware or software and that can be ordered as an option.

Communication in the basic package for IQHeat is ModBus RTU, a modem port and a simple WEB. You can also use ModBus IP through the WEB function.
This simple Web displays the same information as the operator panel on the controller. Possible to connect to the Internet to monitor remotely. Option for OPC is available in this basic version of WEB.

12.1 Standard services

The following services are always included in IQHeat:

- **IQMeter100:** Reading the volume of the pulses and energy from thermal flow meters.
- **IQReturn100:** Limitation of the difference between the primary return and secondary return for heating. Kr1 and Kr2 are handled separately if there are multiple circuits.
- **IQReturn200:** Limitation of return temperature on primary side. Set points set per season.
- **IQOptimal100:** Selectable power or flow restrictor. Works best with M-Bus.
- **IQPump100:** Automatic control of secondary pump for heating circuits with 0-10V to optimise cooling on the secondary side. Only P1, Kr1, on IQHeat110 are predefined but they also work on P2, Kr2, if an output is available.

12.2 Optional services

The following services require some form of hardware or special software to work, which are not included in the basic version:

- **IQWeb200:** Advanced WEB function, with built-in web server. With a graphical interface across the entire substation, and a simple overview of its functionality. No software requirements in addition to a PC with a browser. Includes functions for E-mail and SMS alarms via TCP/IP (IQAlarm100).
- **IQReport:** Report of history 1-8 days in computer interface or by year in Excel tables.
  A function for the presentation of monthly values, energy monitoring in the interface is also available.
  IQReport is included when ordering Advanced WEB, IQWeb200.
  * Short-time database for the last 2 hours for troubleshooting and controller setting.
- **IQMeter200:** Reading of measurement data from coolers/cold water/thermal flow meters via MBus requires MBus in the meters to work.
- **IQWind:** The heating curve is affected to supply extra heat in severe wind conditions.
  Contains a wind meter.
- **IQAlarm200:** Alarm via separate modem which sends alarms to recipients via SMS. Requires extra modem and mobile telephone subscription, and is needed if there is no TCP/ IP connection.
- **BACNET/IP:** Means an additional hardware module for individual connections to BacNet and LON networks. Allows monitoring in the SCADA system. Contact Cetetherm for options, data points, variable lists, etc.
- **IQPump200 via ModBus:** Reading and setting the pumps.
  Requires ModBus communication module.

13 Troubleshooting

Symptom	Cause	Action
Hot water temperature too low	The set point is incorrect	Adjust the HW set point
	Control valve not working	Check that the valve is working by running in manual mode from the control unit up/down, or check to see if the valve reacts to changes to the set point. Request service support on out of service.
	District heating filter clogged Order service support	Order service support
	Controller set in manual mode	Set the controller in Auto mode
Hot water temperature too high	The set point is set too high	Adjust the HW set point
	Control valve not working	See above
	Knob on the valve can be manually adjusted	Check the knob on the valve/actuator. This works in this case as a minimum limit for the degree of opening.
	Controller set in manual mode	Set the controller in Auto mode
The heating system temperature is too high or too low	The heating automation may need to be adjusted	Adjust the heating curve in the control unit. Change the heating curve parameters to ensure that the flow satisfies the requirement.
	ECO function incorrectly set	Change in temperature of the Heating limit (ECO)
	Time schedule incorrectly set	Change the day/weekly schedule to ensure the system works as desired
No heat in the heating system	The circulation pump is not working	Check that the power is on and the fuses are intact. If the pump is controlled from the controller station, make sure it is running, in a day/weekly schedule, ECO function. Check that the pump is not set in manual off mode.
	Too little water in the system	Top up the water
	Air accumulations at the heat exchanger or in heating circuit	Bleed the expansion tank and the heating circuit (radiators)
Disturbing noises in the radiator system (buzzing)	Capacity to high in the pump	Lower the pump capacity by switching to a lower number on the pump's power switch if applicable; change the settings in the differential pressure controlled pump control, if necessary.
Fluctuating temperatures, HW, or heating, clicking in the heating system	Incorrect control of HW or heating	Adjust the control parameters or call Service support
	Flow, heat or hot water circulation too low	Increase the pump speed by changing to a higher power level if possible, or adjust by opening the throttle valve if fitted.
Need to frequently replace water in the heating system	The expansion tank cannot deal with the changes in volume.	Order service support to check the expansion tank's volume receiving section and pre-pressure or for possible leaks
	Leakage	
Temperatures too low for both heating and hot water	Clogged district heating filter	Order service support
	District heating temperature too low	Contact the district heating supplier

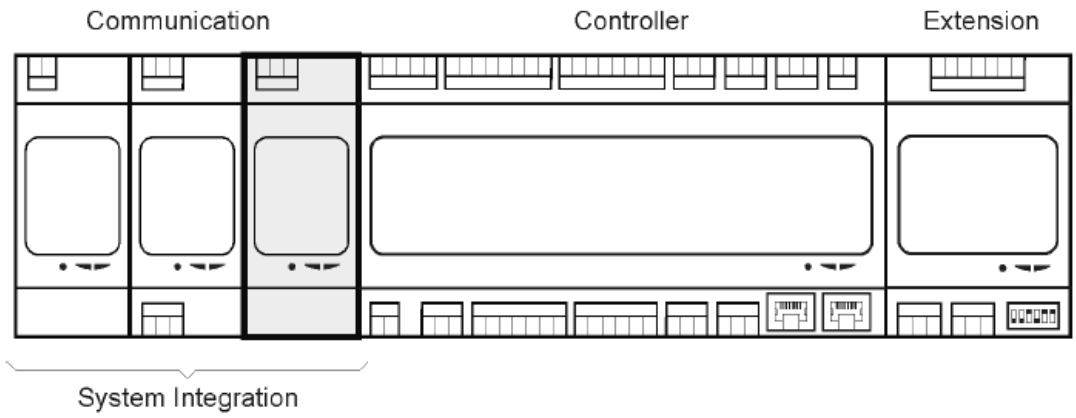
14 Options

Further communication options with the integrated WEB Server, BacNet, M-Bus or LON requires one or more of the following communication modules:

- **Advanced WEB**: Allows the option of Internet-based interface (WEB), Ethernet (IEEE802.3) TCP/IP. Web Server integrated in the module.
- **BacNet/IP** Allows you to connect to a BacNet network.
- **ModBus:** Allows you to connect to a ModBus RTU network.
- **MBus**: For connection of thermal flow meter with M-Bus communications.
- **LON**: Allows you to connect IQHeat to a LON network.

How many and which of these optional modules that can be connected simultaneously or totally depends on the type of district heating and cooling substations.
All the options are connected to the processing unit with a module-to-module connector.

The processing unit and the communication modules' programs and data lists can be updated by an SD card. There is an SD reader in the processing unit and in the advanced WEB module.
Even the processing unit's operating systems can be updated in this way whenever necessary. See *2.1.2 Upgrade with SD card*.



14.1 Expansion module AHU with 14 I/O

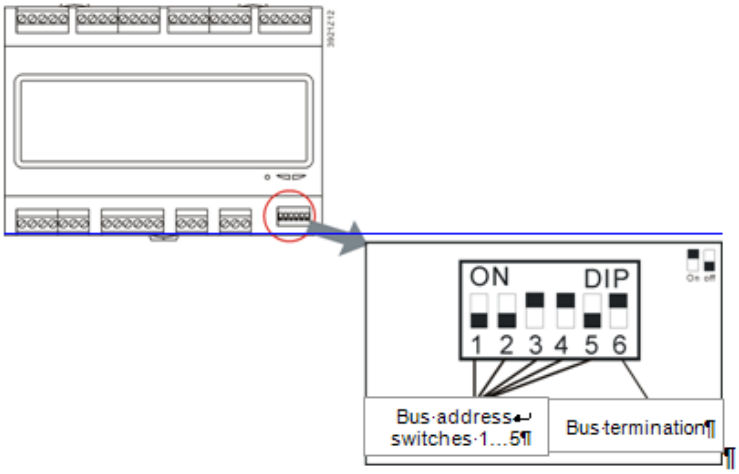
The module's universal inputs and outputs provide high flexibility.
Three expansion modules can be connected to the processing unit.
The expansion module is not included in IQHeat50 and IQHeat50 Cooling.

The expansion module has the following characteristics:

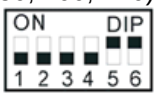
- eight universal inputs/outputs (configurable inputs/outputs for analog or digital signals)
- four relay outputs (NO contacts)
- two analog outputs (DC 0 ... 10 V)

14.1.1 Setting expansion module's DIP switches

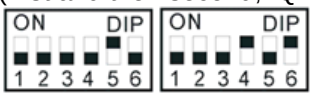
The expansion module is fitted with DIP switches. These are used to set the communication address for communication with the processing unit.
Switches 1, 2, 3, 4, and 5 are configurable and are used to set the slave addresses, while switch 6 is used for termination.
For the last expansion module that is used, switch 6 must be set to ON.



With one expansion module (standard IQHeat 50, 100, 110)



With two expansion modules (first and then second, IQHeat120)



14.1.2 LEDs for BSP and BUS diagnostics

The expansion module has two LEDs, BSP and BUS, for diagnostics. The LEDs can light with three different colours: yellow, green and red.

Status of the LEDs:

Mode	**Status LED BUS**
Communication error	Red LED lights
Communication OK	Green LED lights
Communication OK but one or more parameters are not configured properly	Green and red LED (yellow) lights
Mode	**Status LED BSP**
Incorrect BSP or slave address	Red LED flashes at 2 Hz
BSP in operation (DDC application)	Green LED lights

14.2 Communication module Web, Adv. Web

The communication module is used to activate the advanced web functionality of the processing unit.
It is therefore called Advanced Web module, Adv.Web.
The Adv Web module has the following characteristics:

- built-in WindowsCE® platform with web server application
- generic tree structure to read and write data points
- platform for programming web applications
- alarm server for SMS/E-mail
- peer to peer communications, no server required
- full modem RS-232 port
  - GSM/GPRS support
  - calling functions.

14.2.1 Services associated with Adv Web

The following services require Adv Web:

- IQAlarm 100
- IQReport

14.3 Communication module BacNet IP

The communication module BacNet IP connects the processing unit to a BacNet IP network.
The BacNet IP module has the following characteristics:

- integration for building automation systems via BacNet IP
- client communication to other BacNet units
- pre-installed generic BacNet server
- supports BacNet/IP (B-AAC-profile and BBMD)
- network parameters are configured through the processing unit, HMI or SCOPE

14.4 Communication module ModBus

The ModBus communication module connects the processing unit to a ModBus network, for reading sensors. The ModBus module can be upgraded using an SD card.
The ModBus module has the following characteristics:

- integration to a building automation system via RS 485 ModBus RTU
- two ModBus slave communication ports
- galvanic ally isolated connection to the ModBus network.

14.5 Module MBus

The MBus module is used to map the necessary data points from the MBus units to the processing unit.
The MBus module has the following characteristics:

- The MBus network operates the MBus module such as MBus master and periodically asks for data points from the MBus units.
- MBus mapping of the MBus module defines all MBus units and their required data points (bonds) that will be integrated and mapped to the processing unit
- Up to 6 MBus units such as heating, water or electricity meters, can be connected directly to the MBus module (up to 64 MBus units with MBus amplifiers)
- Up to 200 data points (bonds) can be defined in the MBus mapping
- Connecting the MBus module to the MBus network is galvanic ally separated by optocouplers. The bus power supply is short circuit proof:

14.5.1 Services associated with MBus

The following services require MBus

- IQMeter200

14.6 LEDs for BSP and BUS diagnostics

Optional modules have two LEDs for diagnostics. The LEDs can light with three different colours: yellow, green and red.

LEDs for BSP and BUS diagnostics

The BSP LED has the same meaning for all modules.

Mode	Status LED BSP
BSP running and communication with controller	Green on
BSP running but no communication with controller	Yellow on
BSP error (software error)	Red blinking at 2 Hz
Hardware error	Red on
BSP upgrade mode	BSP LED green, BUS LED alternating at 1 Hz between red and green

14.6.1 BUS for Adv Web module

Mode	Status LED BUS
IP running and communication ok	Green LED lights
IP not running	Yellow LED lights
Hardware or software error	Red LED lights

14.6.2 BUS for BacNet

Mode	Status LED BUS
BacNet IP running and communication ok	Green LED lights
IP not running	Yellow LED lights
Hardware or software error	Red LED lights

14.6.3 BUS for ModBus

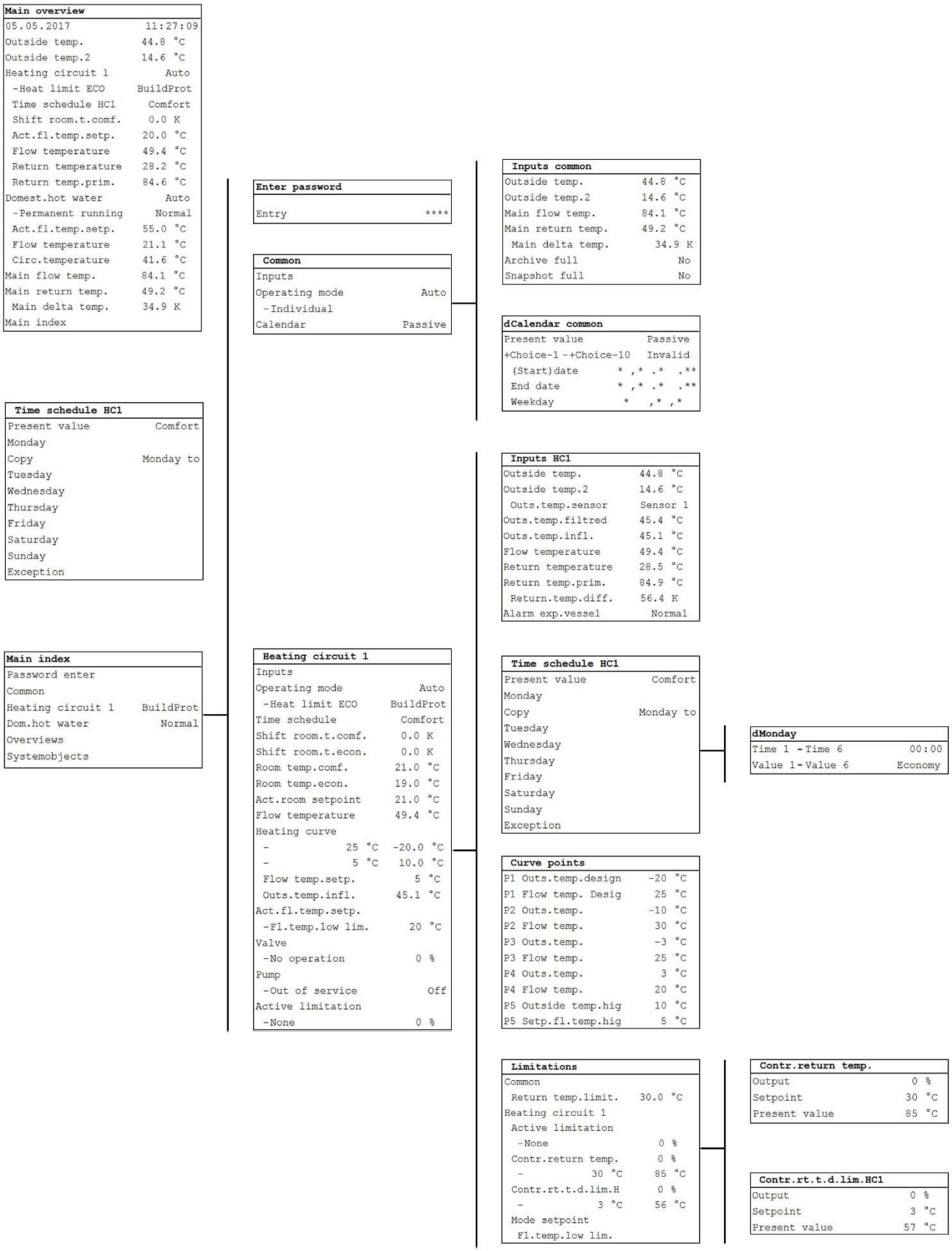
Mode	Status LED BUS
All communication running, or if watchdog is disabled.	Green LED lights
Start-up or one configured channel not communicating to the master.	Yellow LED lights
All configured communications down	Red LED lights

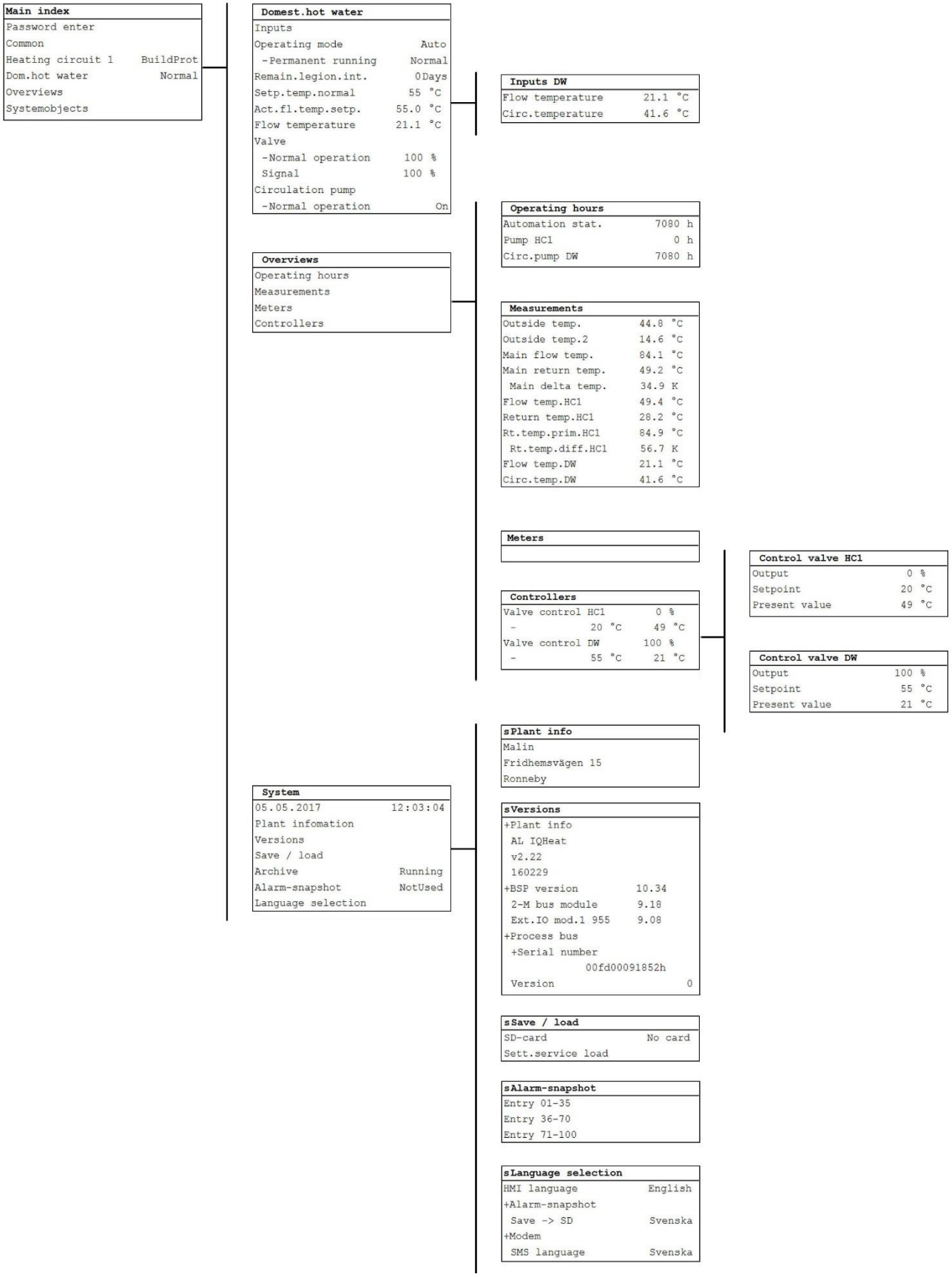
14.6.4 BUS for MBus

Mode	Status LED BUS
M-bus running and communication ok	Green LED lights
At least one M-bus device is not running	Yellow LED lights
No M-bus device is running	Red LED lights

15 Overview of available menus

The following menus are available when logging in at End User Level.




Main index
Password enter
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Remain.legion.int. 0Days
Setp.temp.normal 55 °C
Act.fl.temp.setp. 55.0 °C
Flow temperature 21.1 °C
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-Normal operation 100 %
Signal 100 %
Circulation pump
-Normal operation On
Overviews
Operating hours
Measurements
Meters
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Archive Running
Alarm-snapshot NotUsed
Language selection
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Circ.temperature 41.6 °C
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Circ.pump DW 7080 h
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Outside temp. 44.8 °C
Outside temp.2 14.6 °C
Main flow temp. 84.1 °C
Main return temp. 49.2 °C
Main delta temp. 34.9 K
Flow temp.HC1 49.4 °C
Return temp.HC1 28.2 °C
Rt.temp.prim.HC1 84.9 °C
Rt.temp.diff.HC1 56.7 K
Flow temp.DW 21.1 °C
Circ.temp.DW 41.6 °C
Meters
Controllers
Valve control HC1 0 %
- 20 °C 49 °C
Valve control DW 100 %
- 55 °C 21 °C
Control valve HC1
Output 0 %
Setpoint 20 °C
Present value 49 °C
Control valve DW
Output 100 %
Setpoint 55 °C
Present value 21 °C
sPlant info
Malin
Fridhemsvägen 15
Ronneby
sVersions
+Plant info
AL IQHeat
v2.22
160229
+BSP version 10.34
2-M bus module 9.18
Ext.IO mod.1 955 9.08
+Process bus
+Serial number
00fd00091852h
Version 0
sSave / load
SD-card No card
Sett.service load
sAlarm-snapshot
Entry 01-35
Entry 36-70
Entry 71-100
sLanguage selection
HMI language English
+Alarm-snapshot
Save -> SD Svenska
+Modem
SMS language Svenska

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