

OUMAN C203



Regulator for the three circuits

- control for 2 heating circuits
- 1 domestic hot water control

USER MANUAL

www.ouman.fi

XM1017B: Version 1.5.3->

This user manual explains the C203 regulator's functions and the displays that are visible to all users. The service mode functions are covered in separate service manual at www.ouman.fi.

The regulator also has a service mode that is used when connecting and implementing features as well as the regulator's configuration. It includes certain setting values that do not usually need to be changed or require in-depth knowledge of the regulation process.

The C203 is a heat regulator for 3 circuits (two heating circuits and one hot water circuit). Wiring and configuring selections define what the regulator displays on the display screen.



Press the control button to enter the menu.



Turn the control knob to navigate in the menu.

A maximum of five windows can be displayed with the favourite views key. Default settings for favourite views show menus for each circuit, including all default settings that can be changed by the user as well as information about measurements and the regulator's operation.

You can move from one favourite view to another by tapping the key.

Control knob and OK



Cancel button

Holding the key down for an extended period of time returns the regulator to its basic mode. The display shows the basic view, the monitor dims and the keyboard locks if the locking function is in use.

Basic view

🕒 13:51 03.04.2019		Selection
Outdoor temp.	-2.4°C	
H1 Supply water	29.2°C	Automatic
H2 Supply water	29.8°C	Automatic
DHW Supply water	58.0°C	Automatic

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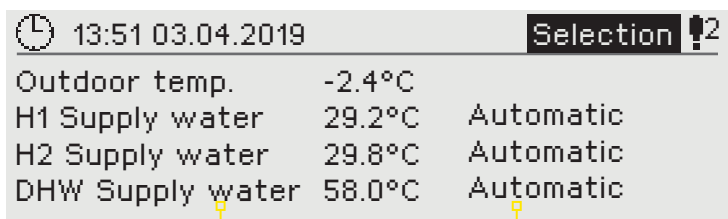
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1 Display menus

Different levels of display menus are used to make the C203 clear and easy to use. The basic view shows the most important information for monitoring operation of the unit. Favourite views that can be changed by users enable them to easily access desired menus. Setting values needed by the user can easily be found in the versatile menu structure.

1.1 Basic view

Central factors related to controlling heating are visible in the regulator's basic view. When the unit is dormant (keys have not been touched) the display shows the basic view.



Alarms

- A blinking exclamation point means the unit has active alarms.
- The number indicates the number of alarms.

Temperature measurements enable quickly determining proper operation of the circuit.

Circuit control. This shows whether the circuit's heating level has been continuously forced to a particularly level or if the regulator is in manual mode.

Acknowledging alarms: Press OK and the alarm sound will stop. If the reason for the alarm has not been corrected, the exclamation point in the top right will continue to blink.



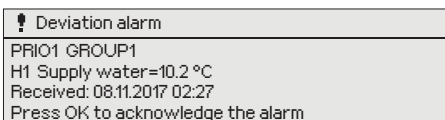
Alarm notice

C203 can generate different kinds of alarms. In the event of an alarm, an alarm window pops up showing detailed alarm information and a beeping alarm signal goes off.

If there are several unacknowledged alarms and you acknowledge the alarm currently appearing in the device display, the previous alarm will appear. As soon as all active alarms have been acknowledged, the alarm window disappears and the alarm signal stops.

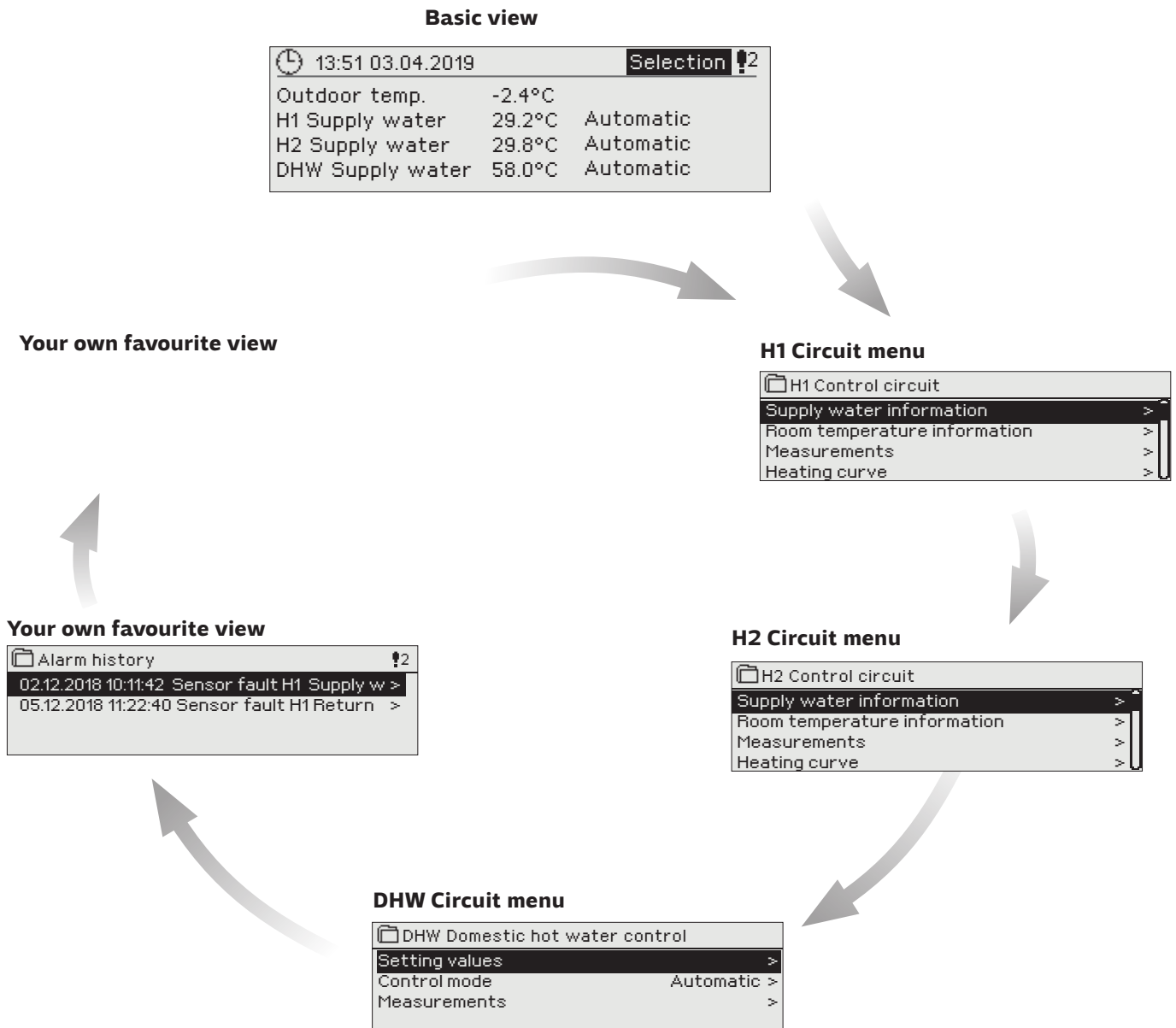
Alarm signal of all active alarms may also be stopped by pressing Esc button. When you press Esc, the alarm signal stops and all the alarm windows disappear from the display.

You may look into the alarms later by going to "Alarms" > "Active alarms". If an alarm has been acknowledged by pressing Esc, an exclamation mark will appear in the beginning of the row.




1.2 Favourite views

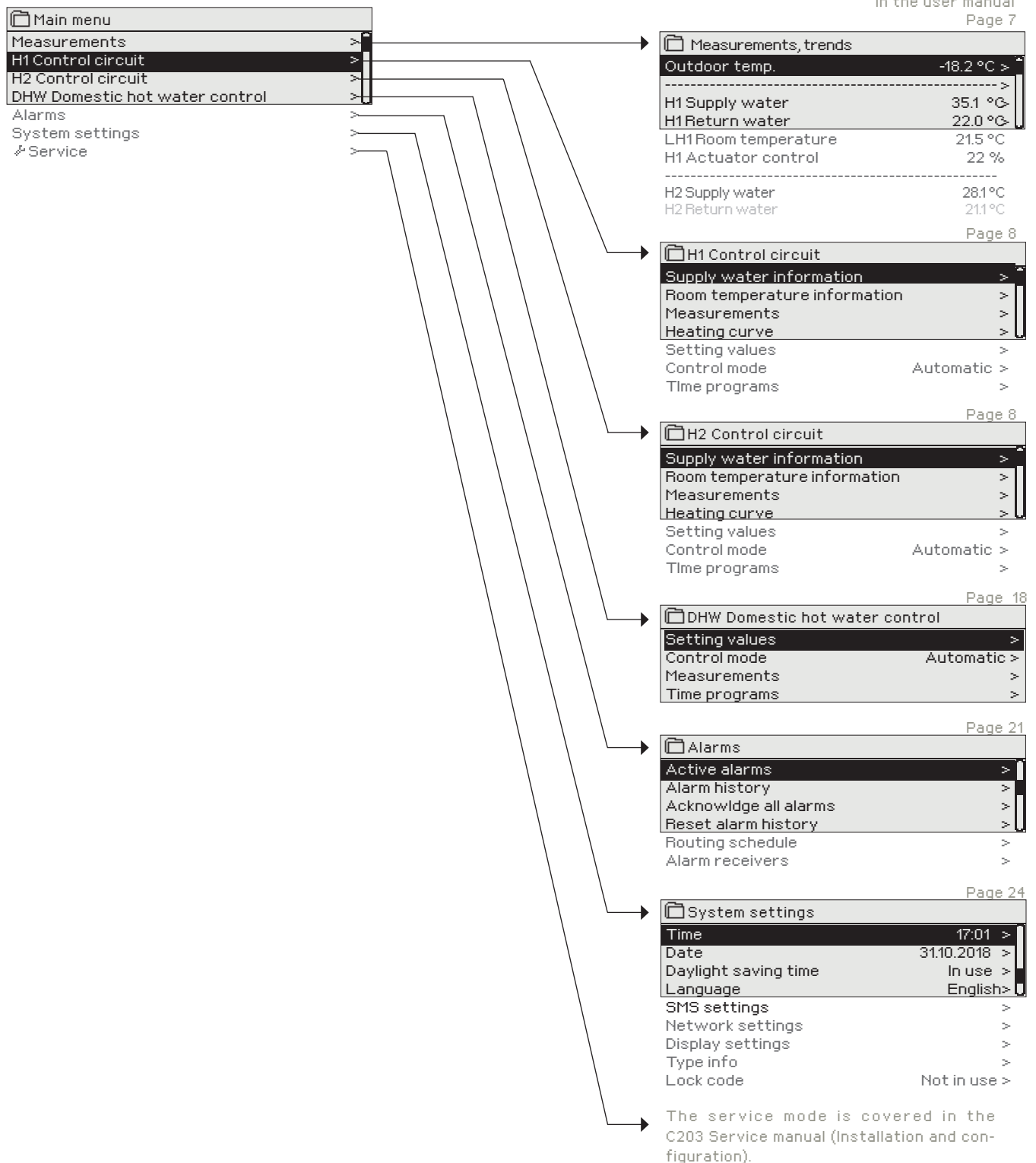
You can easily navigate from the basic view to the desired menu using the favourite view function. You can navigate from one favourite view to another by tapping the button. There can be a maximum of five of these views. The pre-installed favourite views show the circuits' main menus. You can also save a particular regulator view as your own favourite view. You can return from favourite views to the basic view by tapping the ESC key until the basic view appears.



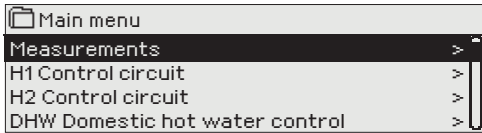
Setting a favourite view

Navigate to the view you want to add to your favourite views. Hold down the  key for an extended period of time until the "Save view in memory location:" menu opens. Use the dial to select the position where you want to add the favourite view and press OK. If you select a location where a favourite view has already been saved, the new favourite view will replace the existing one.

1.3 Menu structure

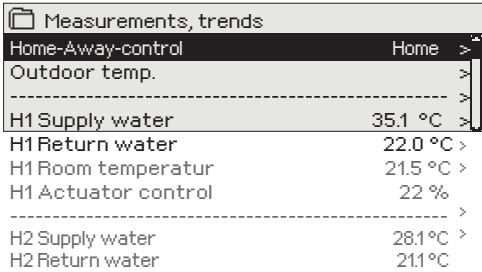


2 Measurements



You can see the measurements and mode information linked to the C203. When you press OK on the measurement row, you can see the measurement's trend or trend log, change the settings of the trend log and change the name of the measurement.

Measurements



General measurements are informational temperature measurements with names set by the factory for a particular use. The general measurement can also be put to a different use and be re-named.

If the sensor is not connected or is defective, the measurement value shown will be -50 or 130 °C. You can also see circuit-specific measurements under each circuit.

Home-Away mode. By pressing OK you can change the status of the Home/Away mode from the regulator.

MEASUREMENTS

MEASUREMENTS:
 Outdoor temp. = -18,2 °C /
 H1 Supply water = 35,1 °C /
 H1 Return water = 22,0 °C /
 H1 Room temp. = 21,5 °C /
 H2 Supply water = 35,7 °C /
 HW Supply water = 57,7 °C /

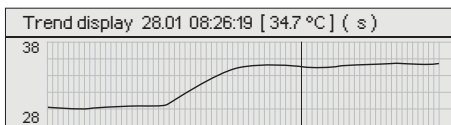
If a GSM is connected to the controller, you can read measurement information from a mobile phone.

Send a message: Measurements

The controller sends the present measurement information to your mobile phone. (If you have a device ID, write the device ID in front of the key word, e.g., Ou01 Measurements)

2.1 Trend display

Measurements → "Select measurement, press OK" → Trend display

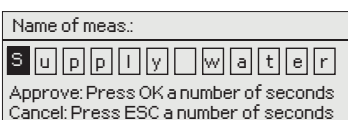


When you press OK on "measurement," a menu for viewing trends and changing settings will open. You can also use the menu to rename a measurement to better describe what is being measured.

Measurement channels continuously monitor trends. Trends show measurements from the past 45 seconds. The measurements displayed are updated at one-second intervals.

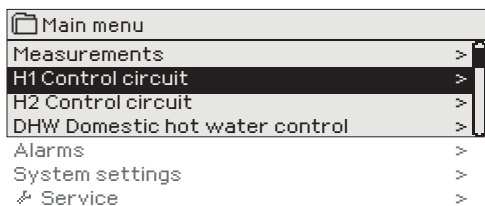
Setting	Factory setting	Range	Information about setting
Trend display			Press OK to view trends. The trend view is updated at one-second intervals, so the measurement can be monitored in real time.
Trend log			From there you can view the trend log if the trend log is turned on. The trend log is not shown in real time, i.e. the view is not updated in real time. The interval for trend-log monitoring can be changed and the log can be saved to a memory stick.
Trend log on	No	Yes/No	The trend log can hold 2,000 measurement samples. The regulator produces a separate trend log for each measurement.
Trend log sampling interval	60 s		A different sampling interval can be set for different measurements. The memory can store 2,000 measurement samples. For example, if the sample interval is 60 seconds, the trend buffer will contain measurement information for 33 hours. If the sampling interval is 1,800 seconds (30 minutes) the buffer will contain measurement history for 41 days.
Trend log saving			The trend log can be saved to a memory stick. A csv file is created on the memory stick, which is named according to the point measured. For example, the trend log for outdoor temperature is saved in a file named U11.csv.
Trend log automatic saving	Not in use	Not in use/ 20 min/ 1 h/ 6 h	You can set the regulator to automatically create a csv file at the intervals that have been set and forward the data to Oulink/M-LINK (additional equipment). If the trend log becomes full before the interval for saving data has passed, the regulator will save the data immediately when the log is full (2,000 measurements).

Name of meas. Supply water



You can change the name of the measurement shown in the display. If the measurement is circuit-specific, the identifier for the circuit appears before the measurement, e.g. H1.

3 Regulation of supply water in heating circuits

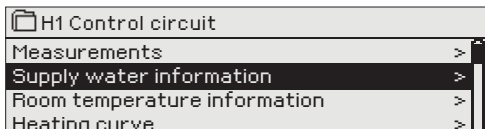


The C203 enables control of two different supply water circuits independently (H1 and H2).

Regulation of the temperature of supply water is controlled by the outside temperature. Use of room temperature measurements keeps room temperature more consistent.

3.1 Supply water information

H1 (H2) Control circuit-> Supply water information



The supply water info shows which factors are affecting the supply water temperature at the time of inspection. The starting point is the supply water temperature according to the outdoor temperature (according to the heating curve).

Factors effecting the supply water temp.	Explanation
According to curve	Supply water temperature setting according to the curve at the current outdoor temperature.
Effect of parallel shift	Effect of parallel shift on the supply water temperature.
Effect of time program	Effect of weekly or exception schedule mode on the temperature of supply water. Near the end of the temperature reduction time, the pre-increase operation can increase the temperature of supply water.
Force control effect	Supply water has been forced permanently to the desired temperature reduction level (see Control mode selection).
Away -control effect	"Away" control for reduction of supply water temperature. The trigger can come from the Home/Away switch, the controller or be sent as a text message (see 30).
Outdoor temp. delay effect	The effect of the outdoor temperature delay on the supply water temperature.
Floor heat. anticipate	Effect of anticipation of floor heating on the temperature of supply water.
Effect of autumn drying	Effect of automatic autumn drying on the supply water temperature.
Return water compensation	Increase in supply water temperature due to return water compensation.
Effect of room compensation	Effect of room compensation on the supply water.
Room comp. time adjustment	Additional correction for more precise room compensation based on realised regulation (effect of I-regulation).
General compensation effect	General compensation can be based for example on wind, solar or pressure measurements.
Bus compensation effect	The amount of required compensation is determined by an external device to the C203, for example from bus compensation to weather compensation.
H1 (H2) DH return comp. effect	Supply water increase caused by temperature compensation for return water from district heating exchanger
Min limit effect	Supply water temperature increase due to the minimum limit.
Max limit effect	Supply water temperature drop due to the maximum limit.
Calculated supply water setting	Present supply water temperature determined by the controller. All the factors are considered that affect the supply water temperature.
Supply water temperature	Present measured supply water temperature.
Actuator control	Position set for the device by the regulator. If series regulation is in use, 50 % means that valve 1 is fully open and vent 2 is closed. 100 % means that both valves are open.
Delayed outdoor temperature	The average outdoor temperature that the controller uses for control. (setting the average p. 13)
The controller is in summer stop	When the regulator is in summer function mode, the supply water information says "Controller is stopped for summer."

Supply water information	
According to curve	35.1 °C
Away-control effect	-8.5 °C

Calculated supply water setting	29.1 °C

In the example in the picture, supply water according to the heating curve is 35.1°C. In the Away mode the controller reduces the temperature of the supply water to 6.0°C. Based on these data, the computational setting value of supply water is 29.1°C (= 35.1 - 6.0).

H1 SUPPLY WATER INFO

H2 SUPPLY WATER INFO

H1 Supply water info:
According to the curve = 35.1 °C/
Away-control effect = -6.0 °C/
Calculated supply water setting = 29.1 °C.

Send a message: H1 Supply water info.

The controller sends a supply water info from the H1 heating circuit to your mobile phone that shows you the controller determined supply water temperature at the present and the factors effecting supply water control. The message cannot be changed or sent back to the controller.

3.2 Room temperature information

H1 Control circuit	
Measurements	▼
Supply water information	▼
Room temperature information	▼
Heating curve	▼

If a room sensor is connected to the controller, you can check the room temperature info to see which factors determine the room temperature at the time of inspection. The basis is the setting value of room temperature.

H1 (H2) Control circuit-> Room temperature information

Factors effecting the room temperature	Explanation
Delayed room temperature	Delayed room temperature that the controller uses in control (see p. 11).
Room temperature setting	Room temperature setting set by the user.
Time program effect on room temp.	Room temperature drop by weekly or exception schedule.
Force control effect	Room temperature has been forced permanently to the desired reduction in room temperature (see Control mode selection)
Away -control effect	Home/Away mode for reduction of room temperature. The trigger can come from the controller from the Home/Away switch or be sent as a text message.
Effect of autumn drying	Effect of automatic autumn drying on room temperature (see page 12)..
Calculated room temperature	Current room temperature setting determined by the controller.

H1 ROOM TEMPERATURE INFORMATION

H2 ROOM TEMPERATURE INFORMATION

H1 Room temperature info:
Delayed room temperature = 19.1 °C/
Room temperature setting= 21.0 °C/
Away-control effect = 2.0 °C/
Calculated room temperature = 19.0 °C.

Send a message: H1 Room temperature info.

The controller sends a room temperature info from the H1 heating control circuit to your mobile phone that shows you the calculated room temperature setting that can be used in control. The message can't be changed or sent back to the controller.

3.3 Measurements

H1 (H2) Control circuit -> Measurements

The "Measurements" menu under the circuit shows the measurements related to the circuit. All measurements connected to the regulator can be found in the Measurements menu at the root level (see page 7).

3.4 Heating curve

H1 (H2) Control circuit-> Heating curve

H1 Control circuit	
Supply water information	>
Measurements	>
Heating curve	>
Setting values	>

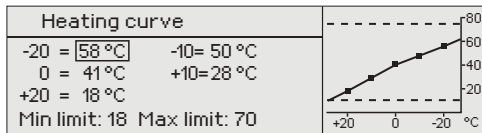
The supply water temperature for different outdoor temperatures is set in heating curve settings. With C203 the heating curve can be adjusted exactly to meet the needs of the facility from either three or five points. A 5 point curve is the factory setting.

Setting	Factory setting	Explanation
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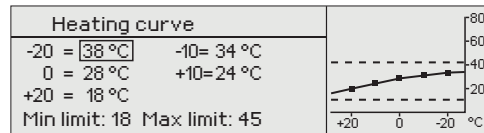
5-point curve

On a 5-point curve you can also change the three middle values for outdoor temperature. Navigate to change mode by pressing the OK key for an extended period of time.

Radiator heating,



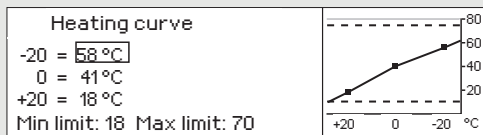
Floor heating,



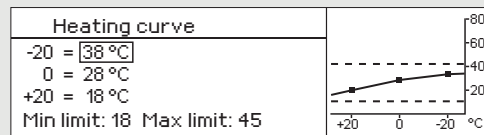
3-point curve (default)

In case of a 3-point curve, you define the supply water temperature for the outdoor temperatures -20 °C, 0 °C and +20 °C.

Radiator heating,



Floor heating,



Min limit

18.0 °C

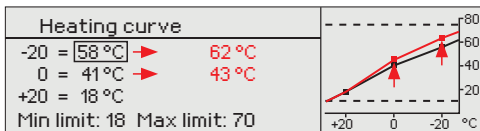
Minimum allowed supply water temperature. A higher minimum temperature is used in damp rooms and tiled rooms than in, e.g., rooms having a parquet floor to ensure a comfortable temperature and removal of moisture in the summer.

Max limit

radiator heating
floor heating

70 °C
45 °C

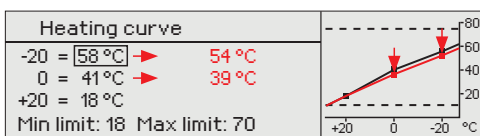
Maximum allowed supply water temperature. The maximum limit prevents the temperature in the heating circuit from rising too high, preventing damage to pipes and surface materials. If, e.g., the characteristic heating curve setting is incorrect, the maximum limit prevents excessively hot water from entering the network.



If room temperature drops, make the curve steeper. (Set higher values for supply water temperature at the outdoor temperatures -20 °C and 0 °C).

If room temperature rises, make the curve less steep.

(Set lower values for supply water temperature at the outdoor temperatures -20 °C and 0 °C).



The preset heating curves are typical average curves for the heating mode in question. The curve may need to be adjusted to suit your building. The setting should be done during the cold period and if the room compensation is in use, it should be switched off during the setting. The curve is appropriate when the room temperature is maintained constant although the outdoor temperature changes.

Note! Changes influence room temperature slowly. Wait at least 24 hours before readjusting the settings. Especially in buildings with floor heating, the delays in room temperature changes are quite long.

H1 HEATING CURVE

H1 Heating curve:

Suppl.w. (-20) = 54 °C/
Outd.t. 2 = -10 °C/
Suppl.w. 2 = 47 °C/
Outd.t. 3 = 0 °C/
Suppl.w. 3 = 39 °C/
Outd.t. 4 = 10 °C/
Suppl.w. 4 = 23 °C/
Suppl.w. (+20) = 20 °C
Minimum limit = 18 °C/
Maximum limit = 70 °C

H2 HEATING CURVE

H1 Heating curve:

Suppl.w. (-20) = 50 °C/
Outd.t. 2 = -10 °C/
Suppl.w. 2 = 44 °C/
Outd.t.3 = 0 °C/
Suppl.w. 3 = 37 °C/
Outd.t.4 = 10 °C/
Suppl.w. 4 = 28 °C/
Menov.(+20) = 18 °C
Minimum limit = 18 °C/
Maximum limit = 79 °C

Send message: H1 Heating curve

The regulator sends a message showing curve settings. You can change the settings by replacing the setting value with a new one and sending a message back to the regulator.

C203 will make the requested changes and send a new message showing the changes made.

Same way you can send message: H2 Heating curve

3.5 Setting values

H1 Control circuit	
Measurements	>
Heating curve	>
Setting values	>
Control mode	Automatic>

The regulator has two types of setting values: those that are always visible and those that can only be changed using a service code. Setting values in the regulator's service mode are described in a manual for service personnel.

H1 (H2) Control circuit-> Setting values

Both circuits have the same circuit-specific setting values.

Changing a setting:

- Choose the desired setting by turning the control knob.
- Press OK to go to the view where editing is possible. Change the setting.
- Press OK to accept the change.
- Press Esc to exit the editing view.

Setting	Factory setting	Range	Explanation
Room temperature setting	21.5	5...50 °C	Basic room temperature setting for the controller set by the user. This setting value is not visible unless room compensation is in use. The room compensation can be taken in use from the "Room temperature settings" menu.
Summer function outdoor t. limit	19.0	10...35 °C	Summer function outdoor temperature limit. When the measured or forecast outdoor temperature exceeds the outdoor temperature limit of the summer function, the valve will be closed and the circulation water pump will stop as selected.
Pump summer stop	In use	In use/ Not in use	If the controller is connected to control the pump, the pump can be stopped when the summer function is active.
Valve summer close	In use	In use/ Not in use	The setting value is used to select whether or not the valve is closed when the summer function is in use.
Autumn dry effect on supply water			The setting value defines how much the autumn dry function increases supply water temperature. If room temperature regulation is in use, the user sets how much the room temperature is increased.
Supply water (Radiator heating)	4.0	0...25 °C	
Supply water (Floor heating)	1.5	0...15 °C	
Autumn dry effect on room temp.	1.0	0.0...1.5 °C	

3.5.1 Room temperature settings

The room temperature setting menu is visible if room measurement is in use in the "Connections and configuration" menu in service mode.

H1 (H2) Control circuit-> Setting values-> Room temperature settings

Setting	Factory setting	Range	Explanation
Room compensation	In use	In use/ Not in use	With room compensation it's defined whether room temperature affects regulation of supply water. If the measured room temperature differs from its setting value, room compensation corrects the temperature of the supply water.
Room compensation ratio		0...7.0	Coefficient which is used in applying the difference between room measurement and the room setting value to the supply water setting value. For example, if room temperature in radiator heating is one degree below the setting value, supply water is raised by four degrees.
Radiator heating	4.0		
Floor heating	1.5		
Comp. max.effect on supply water		0...20 °C	Room compensation's maximum effect on the supply water.
Radiator heating	16.0		
Floor heating	5.0		
Room temp. measurement delay	2.0	0...2.0 h	Amount of room temperature measurement delay (time constant). Different buildings react to temperature changes at different rates. This setting value can reduce the effect of the building on room regulation.

3.5.2 Temperature drops

You can designate separate temperature reduction settings for each circuit. When transitioning from a temperature reduction period to normal temperature level, a preliminary increase in supply water can be used.

H1 (H2) Control circuit → Setting values → Temperature drops

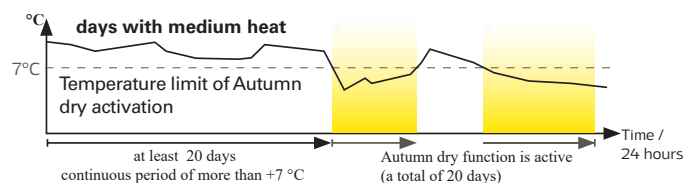
Setting	Factory setting	Range	Explanation
Temperature drop		0... 40 °C	
Supply water, radiator heating	3.0		Temperature drop in supply water, which can start due to scheduling software or a Home/Away text message command or when selecting constant big temperature drop as the circuit's mode. If room temperature measurement has been taken into use, the temperature drop is given directly as a room temperature drop.
Supply water, floor heating	1.5		
Room temperature	3.0		
Big temperature drop		0... 40 °C	
Supply water, radiator heating	5.0		A big temperature drop in supply water temperature can be initiated by the scheduling programme or a command from the home/away switch, or when the continuous big temperature mode mode is selected. If room temperature measurement has been taken into use, the big temperature drop is given directly as a room temperature drop.
Supply water, floor heating	2.0		
Room temperature	5.0		
Home/Away control	Not in use	In use/ Not in use	The Home/Away mode makes transitions between temperature levels. If transmitter measurement mode is connected to the regulator for general compensation, you cannot connect the Home/Away switch but you can use the Home/Away mode via SMS or from the regulator's "Measurements" menu.
Temp.level on Away control	Temp. drop	Temp. drop/ Big temp. drop	If the Home/Away mode is in use, you can select the desired temperature in the "Away" mode. The selections are temperature drop or big temperature drop. The default is temperature drop.

3.5.3 Special setting values

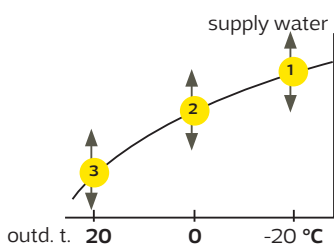
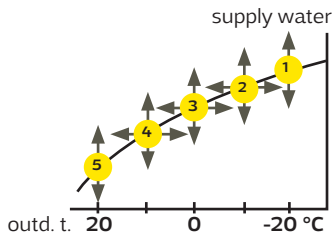
Setting values related to the summer function, autumn dry function, heating regulation and compensation can be found in special setting values.

H1 (H2) Control circuit → Setting values → Special setting values

Setting	Factory setting	Range	Explanation
Supply water pre-increase		0... 25 °C	
Radiator heating	4.0		The amount, in degrees, of the automatic supply water pre-increase occurring at the end of the temperature drop (week clock or exception calendar). The pre-increase helps raise the room temperature more quickly back to a nominal room temperature after a temperature drop. value.
Floor heating	1.5		
Summer func.inh.limit	6 °C	0...20h	The summer function is turned off immediately if the real-time outdoor temperature falls to the "Summer function inhibition limit." The summer function is also turned off if room temperature falls at least 0.5 °C below the setting value or when the regulator restarts.
Valve summer flushing	In use	In use/ Not in use	The flushing operation is done in connection with inspection of the valve's position when the regulator is in summer function mode. During the flushing operation the regulator opens the valve to 20% and then closes it. If the regulator has stopped the pump, the regulator uses the pump during flushing of the valve.
Outdoor temperature forecast	Not in use	In use/ Not in use	In addition to measured outdoor temperature, temperature forecasts can be used with the summer function (requires Ounet connectivity). If the regulator has not received outdoor temperature forecasts via the data channel for 2 hours, the forecast is not used in the summer function.
Autumn dry	In use	In use/ Not in use	In autumn dry mode, supply water temperature is automatically raised for 20 days. The function is turned on automatically when the average daytime temperature has been more than 7°C for a minimum of 20 days and then falls below +7°C. The function remains on for the following 20 days if the outdoor temperature is below 7°C (10 hour time constant for measurement).



CONTROL CIRCUIT SETTINGS

Setting	Factory setting	Range	Explanation
Type of heating	Radiator heating	Radiator heating/ Floor heating	If the radiator heating is chosen as a heating mode, the controller uses the outdoor temperature delay in supply water control (see. Radiator heating delay). If you have selected the floor heating, the controller uses the outdoor temperature anticipation in supply water control (see. Floor heating anticipation).
Curve type	5-point curve	3-/5-point curve	<div style="display: flex; align-items: flex-start;">  <div style="margin-left: 20px;"> <p>With the 3-point curve you can change supply water temperatures with the outdoor temperature values -20°C, 0°C and +20°C.</p> </div> </div> <div style="display: flex; align-items: flex-start;">  <div style="margin-left: 20px;"> <p>With the 5-point curve you can change the supply water settings at fixed outdoor temperature -20°C and +20°C and at three adjustable outdoor temperatures (between -20 and +20). To change the adjustable outdoor temperatures press OK for a long period of time.</p> </div> </div>
Parallel shift	0.0	-15 ... +15 °C	If room temperature is continuously above or below the setting value despite the outdoor temperature, you can add a permanent compensation value to the supply water setting value.
Delay function of radiator heating. <i>These setting values are shown only when radiator heating is used.</i>			
Outd.temp.delay on temp.drop	2.0	0... 15 h	Outdoor temperature delay is in use, if the radiator heating is selected as a heating mode in the control circuit settings. The amount of the outdoor temperature delay is defined with "Outd.temp.delay on temp.drop" setting. The delayed outdoor temperature is used for regulating the supply water temperature. The typical outdoor temperature delay for radiator heating is 2 hours. If the room temperature rises too much when temperatures lowers, increase the "Outd.temp.delay on temp.drop" If the opposite occurs, lower the delay time.
Outd.temp.delay on temp.increase	2.0	0... 15 h	Typically 2 hours delay time is used in radiator heating. If room temperature decreases too much when outdoor temperatures increase below the freezing point, increase the setting value "Outd.temp.delay on temp.increase."
Anticipation of floor heating. <i>These setting values are shown only when floor heating is used.</i>			
Floor heat. anticipate on temp.drop	2.0	0... 15 h	The anticipation drop of floor heating is in use, if the the floor heating is selected as a heating mode in the control circuit settings. Typically 2 hours delay time is used in floor heating. If room temperature falls too much when freezing temperatures fall further, increase anticipation. If the opposite occurs, lower anticipation.
Floor heat. anticipate on temp.incr.	2.0	0... 15 h	Anticipation of floor heating is used for stabilizing room temperature when outdoor temperature changes. In floor heating, the concrete mass of the floor slows transmission of heat from floor to room air temperature. If room temperature rises too much when temperatures rises in winter, increase anticipation.

Setting	Factory setting	Range	Explanation
Summer function			
Room comp. adjustm. time (I control)		0.5 ... 7 h	Time correction improves the room compensation function (I-regulation). In massive houses or houses where floor heating has been installed on a concrete floor, longer room compensation correction times are used.
Radiator heating	1.0		
Floor heating	2.5		
I control's max effect on sup water	3.0	0 ... 15 °C	Room compensation time correction can change supply water temperature to no more than this setting value. If room temperature continuously fluctuates, check whether the problem is resolved by lowering the setting value.
Radiator heating	2.0		
Floor heating			
General compensation min	0	0 ...100 %	General compensation can increase or decrease the temperature of supply water. Transmitter measurement can utilise for example wind or solar measurement or a pressure differential measurement over the heating network. Setting limit values for a compensation area. Set the transmitter measurement message value at which compensation begins and the value at which it reaches its maximum level. The amount of compensation is linear between the limit values. (Implementation of a transmitter and setting values for the measurement area are done during implementation of measurement.)
General compensation max	100%	0 ...100 %	
H1 (H2) Compensation min effect	0.0	-20 ... 20 °C	The compensation minimum tells you how much supply water temperature is changed when the supply water compensation starts.
General compensation max effect	0.0	-20 ... 20 °C	Maximum compensation shows the maximum amount that compensation can raise or lower supply water temperature. If wind measurement is used in transmitter measurement the setting value is positive, i.e. supply water temperature is raised due to the wind. If solar measurement is used in transmitter measurement the setting value is negative, i.e. supply water temperature is lowered due to solar radiation.
<div data-bbox="734 1048 1404 1411" data-label="Figure"> <p>An example of general compensation. A wind sensor is connected to the measurement channel. Wind compensation should start when the transmitter's measurement message is 30% and reach its maximum when the measurement message is 70%. Wind compensation can raise supply water temperature by no more than 4°C.</p> </div>			
Gen. compensation filtering	5	0...300 s	Filtering of measurement signal. The filtering will dampen the effect of rapid changes.
Bus compensation	In use	In use/ Not in use	The need for compensation can be defined by an external device that relays the need for a supply water temperature exception to the C203 through a communication channel (e.g. Ounet S-compensation).
Supply water max drop	0.0	-30.0 ... 0 °C	Channel compensation cannot drop supply water temperature more than allowed by the setting value.
Supply water max increase	0.0	0 ... 30.0 °C	Channel compensation cannot increase supply water temperature more than allowed by the setting value.
Return water compensation	2.0	0 ... 7.0	If return water temperature falls below the setting value for danger of return water freezing, supply water temperature is raised by the value: amount of the deficit multiplied by the compensation ratio.

H1 SETTINGS

H1 Settings:
Room temperature = 21.5°C/
Temp.drop = 3.0°C/

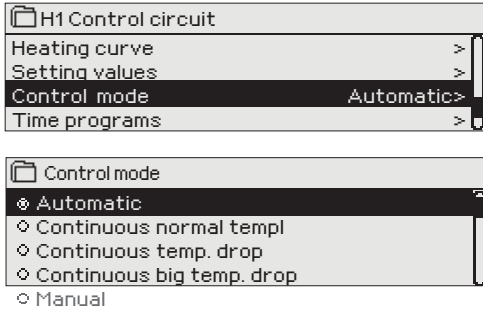
H2 SETTINGS

Send a message: H1 Settings.

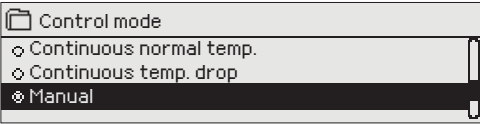
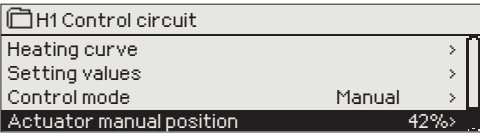
The controller sends the main settings to your mobile phone. Editing the setting values: write the new setting in place of the old setting and send a message back to the controller. The controller sends the setting as a return message.

3.6 Control mode

H1 (H2) Control circuit-> Control mode



Automatic control is the mode that is used normally. You may change automatic control to manual control here, and drive the valve to the desired position. You can also force a mode to the desired temperature level. A continuous mode command bypasses possible scheduling programmes.

Control mode	Explanation
Automatic	C203 controls the supply water temperature automatically according to the need for heating and possible time programs
Continuous normal temp.	Normal heating that is not dependent on scheduling programs is on.
Continuous temp. drop	Temperature drop independent of scheduling programs is on.
Continuous big temp. drop	Big temperature drop that does not depend on scheduling programs is on.
Manual	
	The valve remains in the position it has been set to until manual mode is turned off.
	In manual mode the valve's position is changed with the setting value "H1 (H2) Manual mode position."

Manual mechanical

In mechanical manual mode the valve's position is set from the actuator. To prevent the regulator from changing the position of the valve, the actuator's power input must be disconnected.

H1 CONTROL MODE

H1 CONTROL MODE:
 *Automatic/
 Continuous normal temp./
 Continuous temp. drop/
 Continuous big temp. drop/
 Manual 0 %

Send a message: H1 Control mode

The controller sends a return message in which a * appears in front of the control mode in use. If you want to change the control mode, move the * in front of the desired control mode and send the message back to the controller. The controller will then send a return message showing that it has switched to the desired control mode.

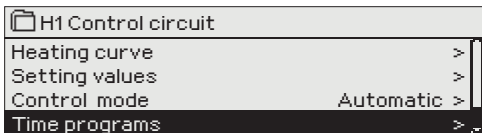
H1 CONTROL MODE:

Automatic/
 Continuous normal temp./
 Continuous temp. drop/
 Continuous big temp. drop/
 *Manual 20%

H2 CONTROL MODE

3.7 Time programs

H1 (H2) Control circuit-> Time programs

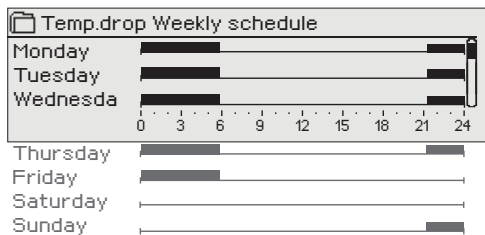


Weekly programmes, programmes for specific days and calendar exception programmes can be added to heating regulation in the C203. You can lower temperatures using scheduling programmes.

3.7.1 Weekly schedule

H1 (H2) Control circuit-> Time programs ->Temp. drop Weekly schedule

Graph view



Weekly programmes have a standard graph view as well as a change view showing the exact time when the new mode command will be executed. In the graph view, exceptions to normal temperature reductions are shown as bars.

Browsing a weekly program:

Turn the control knob to browse a weekly program. If you wish to see the exact switch times or you wish to change, delete or add switch times, press OK at any weekday.

Editing view

Time	Mode	M	T	W	T	F	S	S
21:00	Temp.drop	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
06:00	Normal temp.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
00:00	Add new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In this example, you can see a weekly temperature drop program. Temperature drop is on from 9 pm to 6 am from Monday to Friday.

Adding a new switch time:

1. Press OK at the "Add new" row.
2. You can select the value you want to change using the selection dial. By pressing OK you can change the value by the cursor. Press ESC to return to the previous mode without changing the value.
3. Set the switch time (set hours and minutes separately). Press OK to accept.
4. Press OK and then turn the control knob to set the temperature level. Press OK to accept.
5. Press OK at each weekday you wish to choose.
6. Press OK at the end of the row to accept the new time program. Note! Also remember to define when the control returns to automatic (=normal). Press Esc to exit.

Editing view

Time	Mode	M	T	W	T	F	S	S
06:00	Normal temp.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17:00	Temp. drop	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
00:00	Add new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Annotations: Set switch time (at 17:00), Set state (=desired temp. level) (at 00:00), Select day(s) (at 17:00), Accept (at 00:00).

Editing a weekly program:

1. Turn the control knob to move to the value you wish to change and press OK.
2. Turn the control knob to make the time and temperature changes. Press OK to accept.
3. Press the OK button to change the day of the week.
4. Press Esc to exit.

Deleting a switch time:

1. Turn the control knob to move to the switch time you wish to delete and press OK.
2. Press OK at temperature level and select "Delete switch time".
3. Press OK at the end of the row.

Time	Mode	M	T	W	T	F	S	S
21:00	Temp. drop	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
06:00	Delete switch time	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
00:00	Add new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Tip: Use the preincrease function. With the pre increase function the regulator automatically increases supply water temperature at the end of the reduction phase. Normal temperature has already been reached when the heating mode changes to normal heat.

3.7.2 Exception schedule

H1 (H2) Control circuit-> Time programs ->Temp. drop Exception schedule

Day	Time
Add new	

Day: 30.03.2019
 Time: 11:30
 Mode: Big temp. drop
 Repeat: No
 Accept: Ready

Day	Time	Mode
31.03.2019	11:30	Big temp. drop
14.04.2019	16:00	Automatic
Add new		

The picture shows an exception schedule program. Heat reduction is on from 31 March 2019, 11:30 to 14 April 2019, 16:00

NOTE! Remember to also set the end time for the exception schedule program! When you set the date and time, the mode will change to "Automatic". In this case, the control returns back to the weekly schedule. (If the exception schedule control is repetitive, select the same repeat to the calendar as it was in the start.)

You can easily make changes that differ from normal routine use by using the exception schedule. The date, time and mode to which heating will be changed in the period in question are entered in the exception schedule. To switch from an exception schedule to weekly schedule mode, select automatic mode.

Adding a new activation time:

1. Navigate to "Exception schedule" and press OK. The display will read "Add new." Press OK
2. Press OK and set the start date for the program, then the time and mode. You can select from the following:
 - one day schedule from the weekly schedule (Monday - Sunday)
 - a special day from the special day program (SD1 - SD7)
 - one of the following heating levels: "temperature drop," "big temperature drop," or "normal"
 - "automatic."
3. Select, if the exception schedule is repeated or not. Control can be repeated every month or every year.
4. Accept the exception schedule you created by pressing "Ready."

Deleting an activation time from an exception schedule:

1. Navigate to the row with the activation time you want to delete.
2. Select "Delete switch time."
3. Accept the deletion by pressing "Ready."

3.7.3 Special days

H1 (H2) Control circuit-> Time programs ->Temp. drop Special days

Graph

Editing view

Time Mode SD1
00:00 Add new

Time Mode SD1
08:00 Temp. drop OK

Time Mode SD1
08:00 Temp. drop
22:00 Normal
00:00 Add new

Graph

You can enter special day programs as exceptions to normal weekly schedule. You can designate a maximum of 7 special day programs (SD). A special day program is typically created for each holiday. When the special day program will be applied it is set in the exception schedule.

Adding a new activation time:

1. Navigate to "Special days" and press OK. Select an unused special day and press OK.
2. Place the cursor on "Add new" and press OK. Set the time for the program (hours and minutes are set separately). Select the mode to be switched to at the time specified. Accept the program by pressing OK when the cursor is on OK.
3. Navigate to the "Add new" row. Set the time when the mode will change from temperature drop mode back to normal temperature. Accept the program by pressing OK. You can set several different periods of temperature drop for the same special day.

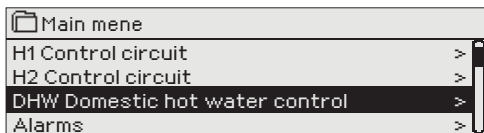
Deleting an activation time from special day day program:

1. Navigate to the row with the activation time you want to delete.
2. Select "Delete switch time."
3. Accept the deletion by pressing "Ready."

3.6.4 Temp. level according to time program

Controller shows, what is the desired heat level, at the moment according to the time program.

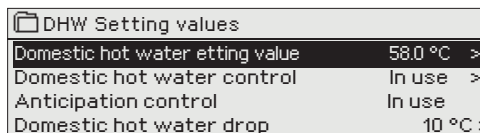
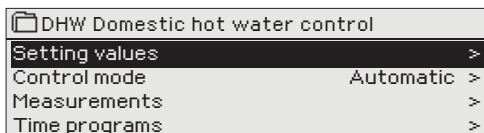
4 Domestic hot water control



The C203 tries to keep the temperature of domestic hot water at the designated setting value. This ensures that the temperature of water from the shower always remains constant. Because of danger of bacteria, it is recommended that the domestic hot water temperature is not permanently set below +55°C.

4.1 Setting values

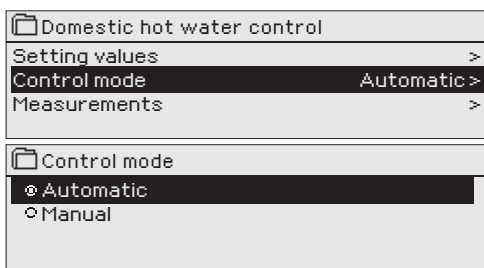
DHW Domestic hot water control -> Setting values



Setting value			
Setting name	Factory setting	Range	Explanation
Domestic hot water setting value	58.0 °C	20...90 °C	Domestic hot water temperature setting.
Anticipation control	In use	In use/ Not in use	Anticipation speeds up regulation when water consumption changes by using measurement information from the circulation water sensor. The regulator recognises the sensor and automatically starts to use anticipation when the sensor is turned on. You can also stop using anticipation.
Domestic hot water drop	10.0 °C	0...30 °C	The amount of drop in domestic hot water drop/increase time programs.
Domestic hot water increase	10.0 °C	0...30 °C	The amount of increase in domestic hot water drop/increase time programs.

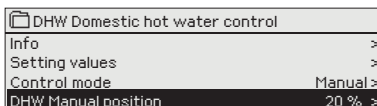
4.2 Control mode

DHW Domestic hot water control -> Control mode



Automatic mode is normally used in regulating domestic hot water. Here you can switch from automatic to manual mode and move the valve into the desired position. You can use manual mode for example when a sensor malfunctions.

Control mode	
Control mode	Explanation
Automatic	C203 maintains the temperature of domestic hot water at the setting value set by the user.
Manual	The position of the desired valve is set with the setting value "HW Manual position."
Manual mechanical	In mechanical manual mode the valve's position is set from the actuator. To prevent the regulator from changing the position of the valve, the actuator's power input must be disconnected.



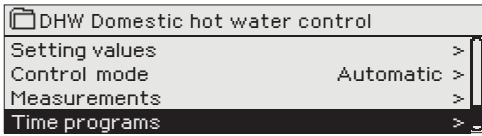
4.3 Measurements

DHW Domestic hot water control -> Measurements

The "Measurements" menu under the circuit shows the measurements related to the circuit. All measurements linked to the regulator can be found in the Measurements menu at the root level (see page 7).

4.4 Time programs

DHW Control circuit-> Time programs

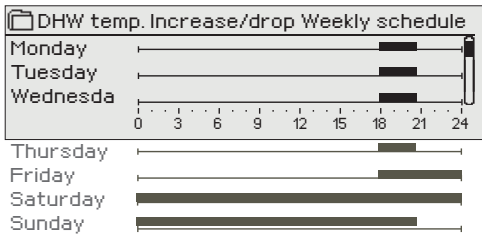


Domestic hot water increases and drops can be made by DHW time program. The degree amount, how much domestic hot water temp. is deviated from the setting value, is set in DHW settings.

4.4.1 Weekly schedule

DHW Domestic hot water control ->Time programs ->DHW temp. Increase/drop Weekly schedule

Graph view



Weekly programmes have a standard graph view as well as a change view showing the exact time when the new mode command will be executed. In the graph view, exceptions to normal temperature are shown as bars.

Browsing a weekly program:

Turn the control knob to browse a weekly program. If you wish to see the exact switch times or you wish to change, delete or add switch times, press OK at any weekday.

Editing view

Time	Mode	Mon	Tue	Wed	Thu	Fri	Sat	Sun
18:00	Increase ON	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21:00	Normal	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
00:00	Add new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

In the example the domestic hot water increase is on from Monday to Thursday 18.00-21.00 and at the weekend from Friday 18:00 to Sunday 21:00.

Adding a new switch time:

1. Press OK at the "Add new" row.
2. Set the switch time (set hours and minutes separately). Press OK to accept.
3. Press OK and then turn the control knob to set the temperature level (Drop ON/ Increase ON/ normal). Press OK to accept.
4. Press OK at each weekday you wish to choose.

Press OK at the end of the row to accept the new time program.

Note! Also remember to define when the control returns to automatic (=normal). Press Esc to exit.

Note! Remember also to make the end section to the controls, i.e. set the time of the return to the "Normal" time, i.e. to the normal domestic hot water control. Press ESC to exit the programming mode.

4.4.2 Exception schedule

DHW Domestic hot water control -> Time programs ->DHW temp. Increase/drop Exception schedule

The picture shows an exception schedule program. Domestic hot water increase is on from 17 June 2018, 11:30 to 25 June 2018, 16:00

NOTE! Remember to also set the end time for the exception schedule program! When you set the date and time, the mode will change to "Automatic". In this case, the control returns back to the weekly schedule.

You can easily make changes that differ from normal routine use by using the exception schedule. The date, time and mode to which domestic hot water temperature will be changed in the period in question are entered in the exception schedule. To switch from an exception schedule to weekly schedule mode, select automatic mode.

Adding a new activation time:

1. Navigate to "Exception schedule" and press OK. The display will read "Add new." Press OK
2. Press OK and set the start date for the program, then the time and mode. You can select from the following:
 - one day schedule from the weekly schedule (Monday - Sunday)
 - a special day from the special day program (SD1 - SD7)
 - one of the following heating levels: "Drop ON", "Increase ON," or "Normal"
 - "automatic."
3. Select, if the exception schedule repeats or not. If you select repeat, it can be repeated every month same time or every year same time.
4. Accept the exception schedule you created by pressing "Ready."

Deleting an activation time from an exception schedule:

1. Navigate to the row with the activation time you want to delete.
2. Select "Delete switch time."
3. Accept the deletion by pressing "Ready."

4.4.3 Special days

DHW Domestic hot water control -> Time programs -> DHW temp. Increase/drop Special days

You can enter special day programs as exceptions to normal weekly schedule. You can designate a maximum of 7 special day programs (SD). A special day program is typically created for each holiday. When the special day program will be applied it is set in the exception schedule.

Adding a new activation time:

1. Navigate to "Special days" and press OK. Select an unused special day and press OK.
2. Place the cursor on "Add new" and press OK. Set the time for the program (hours and minutes are set separately). Select the mode to be switched to at the time specified. Accept the program by pressing OK when the cursor is on OK.
3. Navigate to the "Add new" row. Set the time when the mode will change from temperature increase/ drop mode back to normal temperature. Accept the program by pressing OK. You can set several different periods of temperature drop for the same special day.

3.6.4 Temperature increase/drop Present value

Controller shows, what is the desired heat level, at the moment according to the time program. You can also force control to the desired temperature level by pressing OK and selecting manual control (enter a service code).

Present value	Explanation
Normal	Domestic hot water setting value is used in domestic hot water control.
Increase ON	The setting value is used in domestic hot water control, which is "Domestic hot water setting value" + "Domestic hot water increase".
Drop ON	The setting value is used in domestic hot water control, which is "Domestic hot water setting value" - "Domestic hot water drop".

5 Alarms

Acknowledging alarms: press OK and the alarm sound will stop. If the reason for the alarm has not been corrected, the exclamation point in the top right will continue to blink.



! Deviation alarm
 PR 1 GROUP 1
 H1 Supply water temp. =10.2 °C
 Received: 08.11.2018 02:27
 Press OK to acknowledge the alarm

C203 can send an alarm for a number of different reasons. Information about the alarm is shown on the display. The alarm also sounds a beeping noise, if it is selected that alarm noise is in use (See Service → Settings → Alarm settings).

If the regulator has a number of unacknowledged alarms and you acknowledge the last one, the one before it will appear on the monitor. When all active alarms have been acknowledged, the alarm window closes and the alarm sound stops.

All active alarms can also be suppressed by pressing the Esc key. The alarm windows close when you press the Esc key only once.

You can find both active and inactive alarms in the Alarm menu.

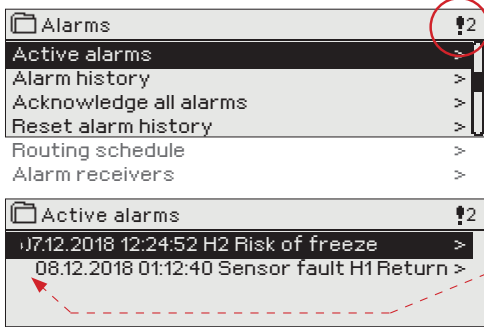
If the sensor is defective, the regulator's display will show the measurement reading -50°C or 130 °C.

Row connection	Sensor	Sensor error alarm (SE)		Delay areas: 0...600 s			
		Alarm text	Operation when a sensor is defective	Entry delay	Exit delay	Alarm group	Alarm priority
1	TMO	Sensor fault Outdoor temperature	The control system uses the value of the outdoor temp. at -5 °C.	20 s	1 s	1	1
2	TMW/TMS	Sensor fault H1 Supply water	Valve remains in the position it was in before the sensor defect.	20 s	1 s	1	1
3	TMW/TMS	Sensor fault H1 Return water	Return water control is disabled.	20 s	1 s	2	1
4	TMR	Sensor fault UI 4	Room control is taken away of use.	10 s	1 s	1	2
	TMW/TMS	Sensor fault UI 4	Informational measurement (H1 DH Return)	10 s	1 s	1	2
5	TMW/TMS	Sensor fault H2 Supply water	Valve remains in the position it was in before the sensor defect.	20 s	1 s	1	1
6	TMW/TMS	Sensor fault H2 Return water	Return water regulation is taken off-line.	20 s	1 s	2	1
7	TMR	Sensor fault UI 7	Roomcontrol is disabled.	10 s	1 s	1	2
	TMW/TMS	Sensor fault UI 7	Informational measurement (H2 DH Return)	10 s	1 s	1	2
8	TMW/TMS	Sensor fault HW Supply water	Valve is closed.	20 s	1 s	1	1
9	TMW/TMS	Sensor error HW circulation water	Does not affect regulation.	20 s	1 s	3	1
10	TMW/TMS	Sensor fault DH Supply water	Informational measurement (DH Supply)	10 s	2 s	1	2
11	TMW/TMS	Sensor fault DH Return water	Informational measurement (DH Return)	10 s	2 s	1	2

Alarm	Entry delay	Exit delay	Alarm group	Alarm priority		Entry delay	Exit delay	Alarm group	Alarm priority
Outdoor temperature from bus alarm	300 s	1 s	1	1	Room temperature H1/H2	600 s	5 s	2	2
Pressure switch alarm (UI 12/ UI 13)	30 s	5 s	1	1	H1/ H2 Freezing risk	5 min ^{*)}	5 s	1	1
Pressure alarm (UI 12/ UI13)	60 s	5 s	2	1	H1/H2 Supply water deviation alarm	60 min ^{*)}	5 s	1	1
Switch alarm (UI 10 /UI 11)	30 s	5 s	1	1	H1 /H2 Overheat alarm	5 min ^{*)}	5 s	1	1
DI1 Alarm, Pump 1 alarm	5 s	5 s	1	1	DHW overheating alarm	10 min ^{*)}	2 s	1	1
DI1 Alarm, General alarm	5 s	5 s	1	1	DHW low limit alarm	10 min ^{*)}	2 s	1	1
UI15 Alarm, P2 Pump alarm	10 s	1 s	1	1	Free measurement (UI 10/UI 11)	60 s ^{*)}	5 s	1	1
UI16 Alarm, P3 Pump alarm	10 s	1 s	1	1	*) User can change the value of entry delay (Service -> Alarm setting values)				

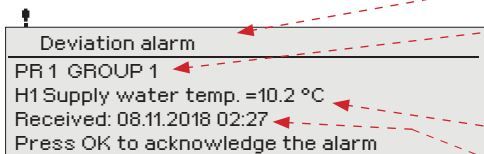
5.1 Active alarms

Alarms > Active alarms



In the alarm menu of C203 device, you can check the active alarms and what alarms have been active. The number of active alarms can be shown in the main view if you wish.

Every active alarm is shown in a separate row, where you can see when the alarm has become active. Press OK to get more information about the alarm.



An exclamation mark in front of the date shows that the alarm has been acknowledged by pressing Esc.

The heading of the alarm view shows the reason for the alarm.

You can also see where the source of the alarm is located, what is the alarm priority (1...5) and what alarm group it belongs to (Group 1 has urgent alarms, group 2 malfunction alarms and group 3 service alarms).

What location the alarm is coming from

time the alarm was received

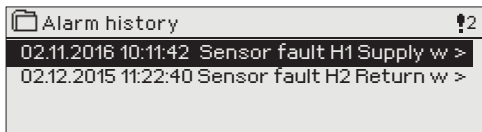
ACTIVE ALARMS

Send message: Active alarms

The regulator sends a message showing all active alarms. Message is informational.

5.2 Alarm history

Alarms -> Alarm history



From alarms you can see the cause of the alarm, where the alarm has come from and when the alarm has become inactive. (e.g., 02.11.2016 at 10:11:42). The last 10 alarms can be seen in inactive alarms.

ALARM HISTORY

Send message: Alarm history

The regulator sends a message showing the last alarms. Message is informational.

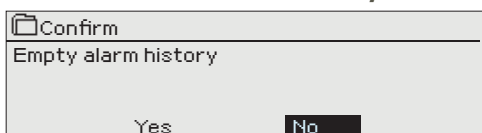
5.3 Acknowledge all alarms

Alarms -> Acknowledge all alarms

You can acknowledge all alarms by pressing OK.

5.4 Reset alarm history

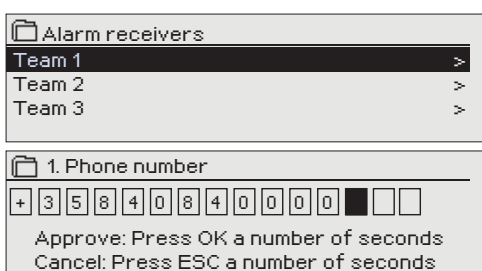
Alarms -> Reset alarm history



C203 requests confirmation before deleting alarm history.

5.5 Alarm receivers

Alarms -> Alarm receivers



A GSM modem can be connected to the C203 unit to send information about the alarm as a text message to the alarm team. A substitute team can also be designated. The alarm is sent to the team that is set in the alarm system's software as the correct team for that time.

Entering the telephone numbers:

1. Turn the control knob. Press OK to accept a number/sign.
2. Press OK to move to the next square. Press Esc to return to the previous square. OK
3. Press OK for a number of seconds to accept the number. Press Esc for a number of seconds to cancel

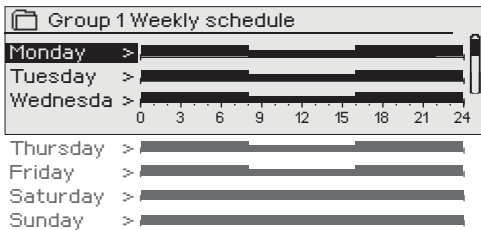


5.6 Routing schedule

Alarms > Routing schedule

Routing schedule	
Group 1 Weekly schedule	>
Group 1 Alarm routing now	Team 1 >
Group 2 Weekly schedule	>
Group 2 Alarm routing now	Team 1 >

Graph



This example shows that group 1 alarms are always forwarded. During business hours (Monday - Friday 8:00 a.m. - 4:00 p.m.) alarms are forwarded to different teams than during evenings and weekends. More detailed information is shown in the "Editing view".

Editing view

Time Mode	M	T	W	T	F	S	S
08:00 Team 1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16:00 Team 2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
00:00 Add new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. Set switch time

2. Set alarm team 3. Select day(s)

Time Mode	M	T	W	T	F	S	S
08:00 Team 1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16:00 Team 2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
00:00 Add new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Time Mode	M	T	W	T	F	S	S
08:00 Team 1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16:00 No routing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
00:00 Add new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Time Mode	M	T	W	T	F	S	S
08:00 Team 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
21:00 Delete switch time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
00:00 Add new	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C203 default alarm groups are:

- **Group 1:** Urgent alarm that should always be immediately forwarded.
- **Group 2:** Malfunction alarms than can be forwarded during business hours.
- **Group 3:** Service alarms or non-urgent alarms.

You can see where alarms are currently being routed in the routing time software display. You can also set up a routing schedule for each alarm group.

You can create a weekly schedule for each alarm group. Weekly schedule have a general graphic view and an editing view, where you can see to which alarm team each alarm is directed at different points of time. In the graph, alarm teams are distinguished from each other by the thickness of the black bar.

Turn the control knob to browse a weekly program. If you wish to see the exact switch times and names of alarm teams, or if you wish to edit, remove or add switch times, press OK at any weekday.

Browsing a weekly program:

An editing view opens, and it shows all the switch times and also to which alarm teams alarms are routed at these times on the chosen days.

Adding a new switch time:

1. Press OK at the "Add new" row.
2. Press OK. Set the switch time for alarm routing (set hours and minutes separately) and press OK.
3. Press OK and then turn the control knob to set the alarm team or the "No routing" option. (No routing selection means that alarms will not be forwarded.) Accept by pressing OK.
4. Press OK at each weekday you wish to choose.
5. Press OK at the end of the row to accept the new time program.
6. Press Esc to exit.

Editing a weekly program:

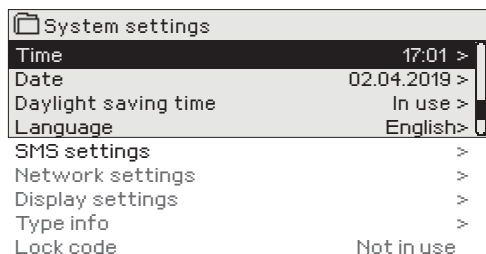
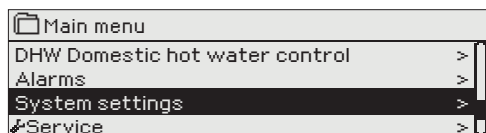
1. Turn the control knob to move to the value you wish to change and press OK.
2. Turn the control knob to make the time and alarm team changes. Press OK to accept.
3. Press the OK button to change the day of the week.
4. Press Esc to exit.

Deleting a switch time:

1. Turn the control knob to move to the switch time you wish to delete and press OK.
2. Press OK at the selected alarm team and select "Delete switch time"
3. Press OK at the end of the row.
4. Press Esc to exit.

If alarms are routed, alarm information is sent to the alarm team by text message. Alarms are relayed according to the alarm time software. You can acknowledge an alarm by sending the same message back to the C203.

6 System settings

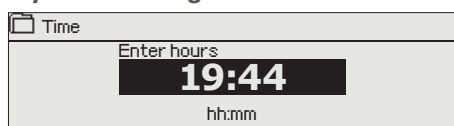


System settings include setting the time, date and language, as well as text message (SMS) settings, network settings, display settings and device type information.

If you want to connect the C203 unit to an Ethernet network, the unit must be connected to an Oulink/M-LINK Ethernet adapter (additional equipment).

6.1 Setting date, time and language

System settings > Time

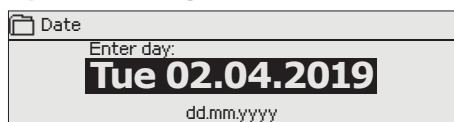


It is important that time and date are correct. Alarm information, for instance, shows when an alarm has activated and inactivated. It is highly recommendable to ensure that time and date are correct when you are making time programs with the weekly program or special calendar. The device clock takes daylight savings and leap years into account automatically. The clock has a backup for power outages lasting at least three days.

Hours and minutes can be set separately.

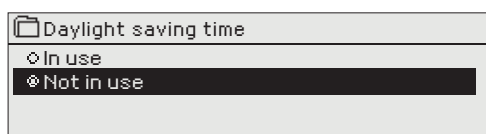
1. Set hours and press OK to accept.
2. Set minutes and press OK to accept.
3. Press Esc to exit.

System settings > Date



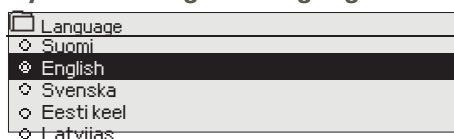
1. Set day and press OK to accept (name of weekday is updated automatically).
2. Set month and press OK to accept.
3. Set year and press OK to accept.
4. Press Esc to exit.

System settings > Daylight saving time



The controller will automatically be switched to to daylight saving time and to standard time, if the selection "In use" is made.

System settings > Language



You can change the UI language here.

6.2 Text message (SMS) settings

System settings > SMS settings

Use of text messaging requires that the C203 is connected to a GSM modem (additional equipment).

Take the GSM modem into use:

1. Enter your PIN
2. Make a blackout.
3. Connect the modem.
4. Switch the power on and the controller initializes the modem and detects the message center (the message center number is not visible on the display).
5. Check the signal strength and status of modem from C203 display
6. Enter Device ID, if you want.

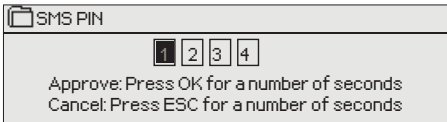
- Test the sms communication. Send to S203 a message: Key words. If the controller sends a message where is a list of key words, text message communication is ok. If the controller doesn't send a text message, enter the message center number, make power cut and turn it back. Retest the text message communication. If communication fails to verify that the message center number has not been manually entered. Press and hold ok for the hidden menus to open. If the message center number is assigned, delete the number. The number can be removed most conveniently by placing the first character in place "blank" and then pressing for a long time OK. Then use the system as powerless and turn it on again, and the controller automatically retrieves the message center number (the number does not appear on the display). Test for communication.

SMS PIN:

If the SIM card has PIN inquiry in use, C203 device asks you to enter PIN code.

Entering the code:

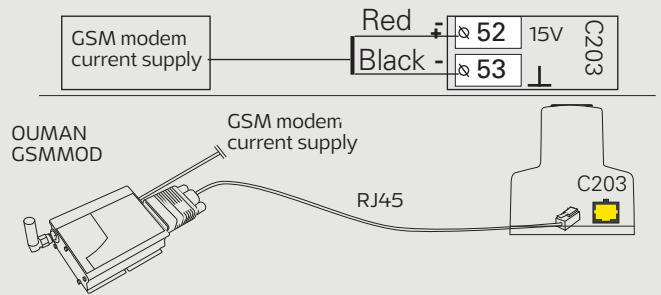
- Turn the control knob and press OK to accept each number. Press ESC to return to the previous square.
- Press OK for a number of seconds to accept the code. Press ESC for a number of seconds to cancel.



GSM-modem connect and power supply

Operating voltage for the GSM modem can be taken from C203 (15VDC output, connectors 52 and 53) or (or from the external power supply).

The GSM modem is connected to C203 to RJ45 Port I. If OULINK/M-LINK is connected to C203 RJ45 port, the modem should be connected to OULINK/M-LINK device's RJ45 Port instead.



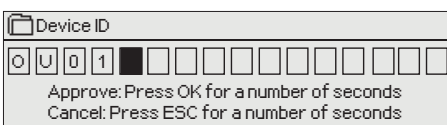
Signal strength:

Signal strength is expressed with description: "Excellent", "Good", "Moderate", "Low", "Very low" and "Initialization failed". If signal strength indicates "No network," try changing the modem's location or use an additional antenna. If the signal strength is "Very low" you should also move the modem to another location to try to improve signal strength. If the unit displays "Initialisation failed," check that the SIM card is correctly installed.

Modem and SIM card status:

C203 recognizes whether the modem is connected or not. The unit initialises the GSM modem automatically.

Modem status	Explanation / Instructions
Connected	The modem is ready for use.
Not connected	The modem is not connected or the connection is incorrect.
SIM card status	Explanation / Instructions
Unregistered	The subscription agreement is not valid.
Registered	The SIM card is ready for use.
PIN error	Enter C203 controller the same PIN as as the GSM modem's SIM card PIN.
PUK	SIM card is locked (PUK code).

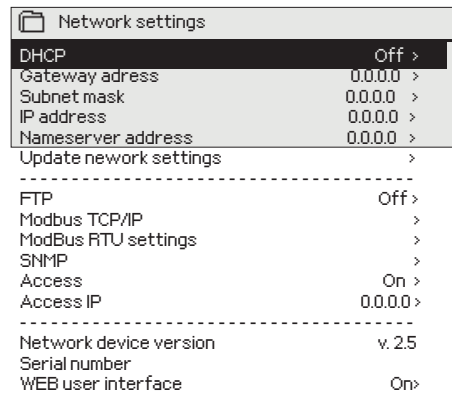
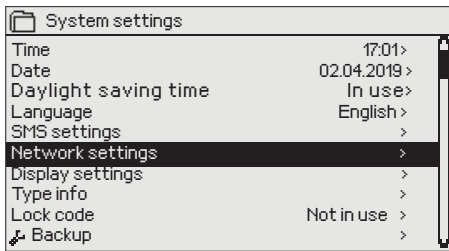


Device ID:

You may give your C203 device a device ID. In SMS communication, always type the device ID in front of the keyword (e.g. OU01 MEASUREMENTS).

6.3 Network settings

If you want to connect the C203 unit to an Ethernet network, you will need an Oulink/M-LINK device (additional equipment). C203 device can not be connected without a firewall to public Ethernet network!



System settings > Network settings

There are two alternative ways to set the C203 device IP address and network settings:

1. IP address is retrieved via DHCP function. This requires that DHCP service is in use in the network and network cables have been connected.
2. IP address is set manually.

Setting the IP address via DHCP function:

1. Go to DHCP and press OK.
2. Select "On" and press OK to accept selection.
3. Select "Update network settings" and press OK to accept selection.
4. Wait approximately one minute.
5. If DHCP is "On", setting the IP address and other network settings was successful. The device now functions in the network.
6. Otherwise, make sure the connections and the fact that the network has a DHCP server.

Setting the IP address manually:

1. Request correct network settings (IP address, Gateway address, Subnet mask, Nameserver address) from the network administrator.
2. Go to "System settings" -> "Network settings" -> "DHCP" and press OK.
3. Select "Off" and press OK to accept selection.
4. Enter all network settings (IP address, Gateway address, Subnet mask, Nameserver address) provided by the network administrator.
5. Select "Update network settings" .

A tip! How to set the network settings easier and faster

You can make setting of the IP settings easier

- if you know DHCP service exists in the network
 - if you know the DHCP address range and fixed address range in the network
 - if you wish to use a fixed IP address.
1. First, set DHCP function **On**. After the settings have been set successfully, set DHCP **Off**.
 2. Change **only** IP address manually. (A fixed IP address must fit the fixed address range).

Network settings	
FTP	Off >
Modbus TCP/IP	>
ModBus RTU settings	>
SNMP	>
Access	On >

Modbus TCP/IP	
Modbus TCP port (internal registers)	502 >
Max connections	20 >
Idle timeout	300 >
Allowed address	0.0.0.0 >
Active	On >
Modbus TCP/IP gateway	>

ModbusTCP/IP gateway	
Modbus port A1/B1	503

Modbus RTU settings	
Master-Slave	Slave >
Modbus slave address	10 >
Baude rate	9600 >
Parity	No Parity >
Data bits	8 >
Stop bits	1 >
Taken selections to use	>

SNMP	
IP address	10.11.23 >
Active	Off >

System settings > Network settings->FTP

FTP

Oulink/M-LINK device can be updated by using FTP protocol and trend files can be export to the computer. If you do not use these features, FTP put off.

System settings > Network settings->Modbus TCP/IP

Modbus TCP port (internal registers): Port number 502 is reserved for communication of C203 device. Information of Modbus registers of C203 device are read through this port.

Max connections: It is possible to decrease server load by changing this setting that defines the maximum number of simultaneous connections from different IP addresses to the server.

Idle timeout: This setting defines the time after which the server closes an inactive connection.

Allowed address: It is possible to improve the information security of the system by taking permitted connection address into use. If the value is 0.0.0.0, connections to the server are permitted from any IP address. If you define one permitted connection address, connections to the server are not permitted from any other IP address.

Function on: This selection either enables or disables the entire Modbus/TCP communication.

Modbus TCP/IP gateway →Modbus 1 port: It is possible to connect a Modbus/RTU bus to an C203 device. The bus has its own port address that is used to communicate with bus devices via Modbus/TCP interface. Port 1 setting defines the TCP/IP port that functions as a gateway to Ouflex I/O extension bus.

System settings > Network settings-> Modbus RTU settings

Modbus RTU settings: If C203 is connected to the Modbus RTU bus as a slave, you have to set the address of the C203 device. **Note! All the slave devices connected to the bus must have unique address.**

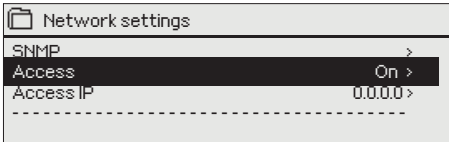
C203 can be as a master device in the Modbus-RTU bus. In this case, the C203 is a gateway between Modbus TCP and RTU. As a default C203 is a slave device. When you press and hold the OK button, the hidden settings are displayed and you can change C203 to master device. If you do changes, you must select "Taken selections to use".

System settings > Network settings-> SNMP

SNMP settings: SNMP function can be used to send notifications about alarms activating, inactivating and being acknowledged via SNMP protocol to a desired server.

IP address: The IP address of the target server to which messages are sent.

Active: This selection either enables or disables the entire SNMP function.



System settings > Network settings-> Access Access

Oulink/M-LINK supports Ouman Access-service which gives you a secure remote connection to the C203 device. With this setting you can activate the ACCESS-service in order to be able to use it.

OUMAN ACCESS- service is "on" by default in C203. OUMAN ACCESS- service is taken in use in following way: Ouman salesperson feeds in the target and billing information to the Ouman system and activates the service based on the serial number of the C203 device.

OUMAN ACCESS- device can be connected to LAN if following conditions are fulfilled:

1. LAN is routed via Internet

The Access service operates on the Internet so the Access service is not available if the device is not connected to the Internet. The Access device examines the availability of Internet connection by sending a Ping packet to the Internet server at 3-minute intervals.

The network must allow the ICMP outwards from any port and the receipt of the reply message to the same port.

2. The VPN protocol used by Access service outwards is not blocked

The Access service is based on the VPN connection which the Access device creates to the Access server.

The network must allow the UDP outwards from any port to the port 1194 and the receipt of the reply message to this port.

3. Time service protocol outwards is not blocked

The Access service works only when the clock in the Access device shows the correct time. The clock is set to the correct time manually from the network using the NTP protocol.

The network must allow the UDP outwards from any port to the port 123 and the receipt of the reply message to this port.

4. LAN addressing does not overlap the 10.200.1.X address space used by the ACCESS device

The Access device creates a small local network with the address space 10.200.1.0/24. The main devices connected to the Access device belong to that local network, at the address 10.200.1.1, for example. If the Access is connected to the local network which uses the same (10.200.1.0/24) address space or an address space overlapping it, it creates a conflict in the network about where the said network and its addresses are located, because the same networks and addresses are showing twice in different directions. It is not possible to use the Access device to route the traffic correctly.

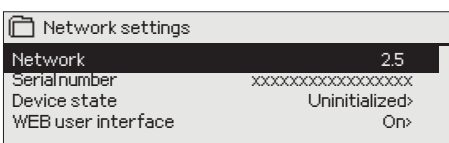
The Access device must be connected to such a local network where the address space is not the same or does not overlap the 10.200.1.0/24 network used by the Access device.

System settings > Network settings-> Network device version...

From network settings you can see OULINK/M-LINK device serial number and version number. If all the settings are correct, the status of the device is "OK".

By using the WEB user interface in OULINK/M-LINK, you can download trendfiles into your pc. You can also update the Oulink/M-LINK firmware through the WEB user interface.

In local use, login URL is the IP address. In internet use ask for login URL Ouman sales. If you do not need these functions, please disable the FTP functionality.



6.4 Display settings

System settings > Display settings

Display settings	
Display version	x.x.x
Contrast	75 >

You can adjust contrast. If you wish the display to be brighter, set a smaller numerical value. The setting range is 50... 100. The display changes after you have confirmed the setting change.

6.5 Type information

System settings > Type information

Type information	
Serial number	xxxxxxx
C203	x.x.x
Ouman Ouflex	x.x.x
Display	x.x.x

Type information shows the hardware configuration and the software versions that have been used to create the application. This information is useful especially in case of maintenance or upgrade.

6.6 Lock code

System settings > Lock code

Lock code	
Network settings	>
Display settings	>
Type information	>
Lock code	Not in use >

Lock code	
<input checked="" type="radio"/> In use	
<input type="radio"/> Not in use	

If you take lock code into use, you can read C203 device information when the device is locked, but you can not change settings. It is recommended, for example, that you take lock code into use if the device is located so that anyone could reach it and change settings (e.g. deactivate burglar monitoring). Locking the device and changing the lock code prevents unauthorized use of the device.

Lock code function	Description
Not in use	You can read C203 device information and change settings.
In use	You can read C203 device information but you can not change settings without entering the lock code. The factory setting of lock code is 0000. If you take lock code into use, change the code for security reasons.

System settings > Change lock code

Give lock code	
□□□□	
Approve: Press OK for a number of seconds Cancel: Press ESC for a number of seconds	

If you have taken lock code into use, you may change the code. The factory setting of lock code is 0000.

1. C203 device asks you to enter the current code. The factory setting of lock code is 0000.
2. Turn the control knob and press OK to accept each number. Press ESC to return to the previous square.
3. Press OK for a number of seconds to accept the code. Press ESC for a number of seconds to cancel

NOTE! When you enter a locking code when changing the default, the code will not be required again until the unit has been untouched for 10 minutes, when the unit goes into hibernation mode. You can also place the unit in hibernation mode by pressing the ESC button for a long period of time.

7 Communication via a mobile phone

KEY WORDS

Key words
Home/
Away/
Measurements
H1 Supply water info
H1 Setting values
H1 Control mode
H1 Heating curve
Active alarms
Alarm history
Type info

If a GSM modem is connected to the C203 you can communicate with the regulator by text message using command words.

Send the following text message to the controller: **KEY WORDS**.

You can send the text message question mark to the controller to get a list of key words. If the controller has a device ID in use, always write the device ID in front of the key word (example. Ou01 KEY WORDS or Ou01 ?). **Capital and small letters are different characters in the device ID!**

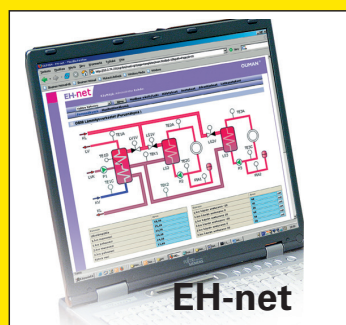
The controller sends a list of key words as a text message that gives you information about the controllers' function. The key word is separated by a /. You can write the key word using capital or small letters. Write only one key word/message. Store the key words into your phone's memory.

Key word	Explanation
?	Reply messages show all key words in the language that has been selected for the controller.
Key words	If the controller is set up in English, the regulator sends a list of key words.
Home	C203 goes into "Home" mode.
Away	C203 goes into "Away" mode.
Measurements	The measurement information or state of the input are shown in the reply message.
H1 Supply water info H2 Supply water info	The reply message shows the calculated setting value of supply water and factors which affect on it. Data are informational.
H1 Setting values H2 Setting values	The most important setting values are shown in the reply message. You can change the setting values by modifying the text message and sending it back to C203. The controller confirms the setting change by replying with new settings.
H1 Control mode H2 Control mode	In the reply message, the current control mode will have a star next to it. You can change the mode for the circuit by moving the star and sending a change message to the controller.
H1 Heating curve H2 Heating curve	If a 3-point heating curve is in use you can change the supply water temperatures for outdoor temperatures -20, 0 and +20°C, as well as the minimum and maximum setting values for supply water. If a 5-point heating curve is in use you can set temperatures for supply water for 5 outdoor temperatures. Two outdoor temperatures are fixed values (-20 and +20°C). You can change the three outdoor temperature setting values between these. You can also change the minimum and maximum limits of supply water.
DHW Settings	The reply message will show the setting value for domestic hot water and its control mode. You can also change the setting and control mode.
Active alarms	The reply message will show all active alarms.
Alarm history	The reply message will show information about the latest alarms.
Type info	The reply message will show information about the device and software.

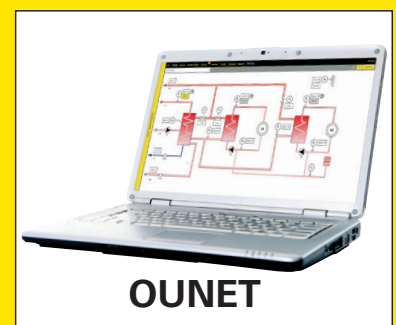
Remote control options



Use a GSM phone requires that the GSM modem (optional) is connected to the controller.



Local Web Server remote control and monitoring (optional).



Internet-based on-line control room for professional remote control and monitoring (optional).

Optional equipments and remote control options

M-LINK

Adapter for C203 for networking

M-LINK is an C203 adapter that is providing ModbusTCP/IP interface to C203 serie device. Oulink/M-LINK is compatible with 2.0 and later versions of C203. Ouflex C series devices can be identified from that that they always have a SD-card reader

- Integrated Ouman Access connection
- ModbusTCP/IP
- ModbusTCP/IP ↔ RTU Gateway
- SNMP alarm transfer
- Trend file storage and transfer (FTP + HTTP)

GSMMOD

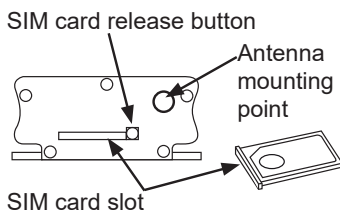
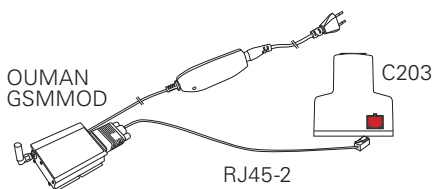
By connecting the modem to the C203 controller, you can communicate with the text messages and pass this information on alarms to your mobile via SMS.

Ouman's GSM modem (GSMMOD) is connected to the C203 unit or to an Oulink/M-LINK device if the C203's RJ-45 port has been connected to an Oulink/M-LINK device. The modem has a fixed antenna that can be changed to an external antenna with a 2,5m cord (optional equipment) if needed. The modem's indicator light shows what mode it is in.

Connecting the modem and taking it into use

Ouman's GSM modem (GSMMOD) is connected to the C203 unit or to an Oulink/M-LINK device if the C203's RJ-45 port has been connected to an Oulink/M-LINK device. The modem has a fixed antenna that can be changed to an external antenna with a 2,5m cord (optional equipment) if needed.

The modem's indicator light shows what mode it is in.



Inserting the SIM card

Press the small black SIM card release button with, for example, a pen tip. Part of the SIM card slot will stick out of the modem. Pull the slot out of the modem. Do not pull the slot out of the modem without pressing the SIM card release button first! Insert SIM card into the slot and make sure it settles properly. Push the slot back to its place. Set the SIM card PIN code as C203 device PIN code. Make sure PIN inquiry is in use in the SIM card.



Product disposal

The enclosed marking on the additional material of the product indicates that this product must not be disposed of together with household waste at the end of its life span. The product must be processed separately from other waste to prevent damage caused by uncontrolled waste disposal to the environment and the health of fellow human beings. The users must contact the retailer responsible for having sold the product, the supplier or a local environmental authority, who will provide additional information on safe recycling opportunities of the product. This product must not be disposed of together with other commercial waste.

Technical information

Protection class	IP 20
Operating temperature	0 °C...+40 °C
Storing temperature	-20 °C...+70 °C
Power supply	
Operating voltage	230 Vac / 120 mA
Battery backup	12 Vdc



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We reserve the right to make changes to our products without a special notice.

