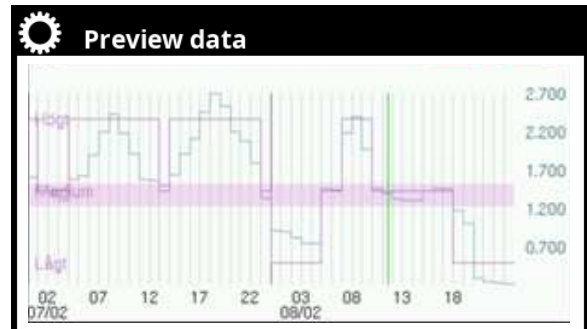
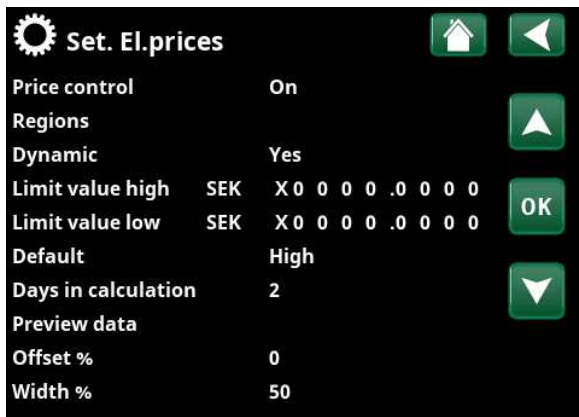


Smart Electricity Price Control/ SmartGrid

CTC EcoLogic L/M, CTC EcoPart i600M, CTC EcoPart 400 Pro, CTC EcoZenith i255/i360/i555 Pro, CTC EcoVent i360F, CTC EcoHeat 400, CTC GS/GSI 600



Electricity price control via myUplink

By connecting the myUplink mobile app to the heat pump, spot prices from the regional electricity exchange can be continuously downloaded to the heat pump.

Three price categories can be defined in the display: "High," "Medium," and "Low."

If the spot price is above the "High" limit value, the "SmartGrid Blocking" function is activated for the subsystems for which the function has been set ("Settings" menu).

If the price is below the "Low" limit value, the "SmartGrid Low Price" function is activated for the subsystems for which the function has been set.

The "SmartGrid Overcapacity" function is not used for electricity price control.

Please note:

To obtain the correct electricity prices, the country where the system is installed must first be set.



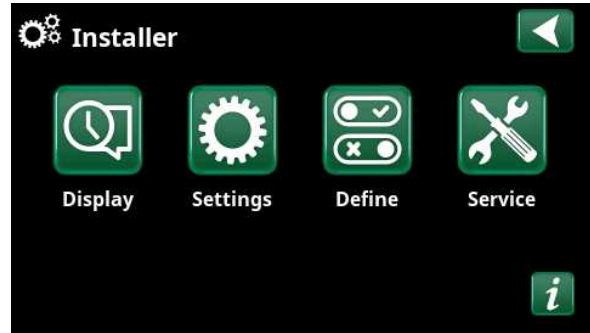
Adjusting the "Country" setting

Click the "Country" symbol in the "Installer/Display" menu to display countries or regions that can be selected. The country that is pre-set (highlighted in green) depends on which language has been selected.

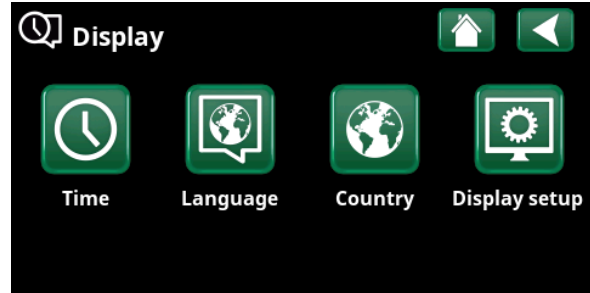
English is the default language setting, which means that "GB United Kingdom of Great Britain and Northern Ireland" is the default country setting.

Select the country where the system is installed. Depending on which country is selected, product-specific factory settings may vary.

"Country" must also be selected to obtain the correct electricity prices for electricity price control via the myUplink mobile app.



Menu: "Installer".



Menu: "Installer/Display".



Menu: "Installer/Display/Country".



"Def. Communication" menu

First define "El.prices" in the "Installer/Define/Communication" menu.

El.prices **myUplink/myUplink ext./BMS/No**

Select "myUplink" to connect the heat pump to the myUplink mobile app for electricity price control.

Select "myUplink ext." to connect via myUplink to an external price control app. This option is not available at the moment.

Select "BMS" to connect via property management.



Menu: "Installer/Define/Communication".



Communication settings

Ensure that "myUplink" is selected in the "Def. Communication" menu.

Select "El.prices" in the "Installer/Settings/Communication" menu to access the "Set. El.prices" menu.

Set. El. prices

Price control On/Off

Select "On" to show the other menu lines of the "Set. El.prices" display menu.

Regions SE01/SE02/SE03/SE04

Click "OK" on the "Regions" line. If "Regions" are defined for the selected country (see "Installer/Display/Country" menu), price regions for the country are shown here. Otherwise, the text "No regions available" is displayed. In this example, Swedish price regions are displayed.

Dynamic Yes/No

"Yes" means that the electricity prices are calculated according to price algorithms that define the price categories ("High", "Medium" and "Low").

Click "OK" on the "Preview data" line to display a graph of electricity prices calculated over the selected time interval ("Days in calculation").

The graph can also be displayed by clicking the "El.prices" icon in the "Operation" main menu (see "Operation" section).

Limit value high

Set the limit value above which the electricity price is defined as "High" (in the example, the limit value is SEK 3.50). This can be used together with the dynamic price calculation feature to define a different "High" price range than that determined by the dynamic price calculation feature.

Prices defined as "High" activate the "SmartGrid Blocking" function.

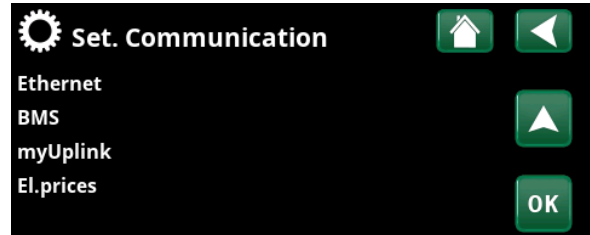
Limit value low

Set the limit value below which the electricity price is defined as "Low" (in the example, the limit value is SEK 1.50). This can be used together with the dynamic price calculation feature to define a different "Low" price range than that determined by the dynamic price calculation feature.

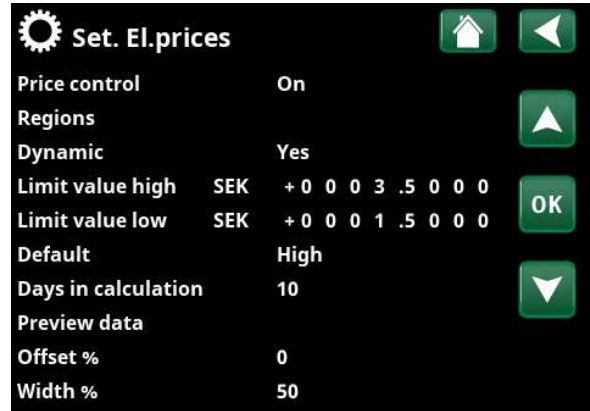
Prices defined as "Low" activate the "SmartGrid Low price" function.

Default High/Medium/Low

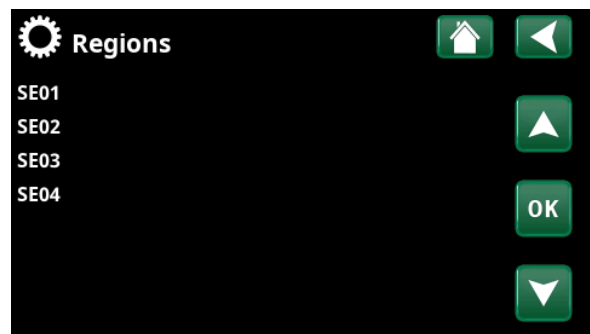
Select the price category that should apply if prices cannot be retrieved.



Menu: "Installer/Settings/Communication".



Menu: "Installer/Settings/Communication/El.prices" where "Installer/Define/Communication/myUplink:Yes" is selected.



Menu: "Installer/Settings/Communication/El.prices/Regions" where "Installer/Define/Communication/myUplink:Yes" is selected

Days in calculation

1...10

Select the number of days on which the dynamic calculation of the electricity price will be based. Since the dynamic calculation is based on the average price per day, more days in calculation result in a more stable and reliable value.

See also the "Example: Electricity price settings" section.

Preview data

Click "Preview data" to show electricity prices during the selected period in graph form.

Offset %

0 (0...100)

Enter code "4003" in the "Installer/Service/Coded settings/Code" menu to display the "Offset %" menu line.

"Offset" is the boundary between where "High" price and "Medium" price electricity is determined and is based on the average price for the number of days used in the calculation.

See also the "Example: Electricity price settings" section.

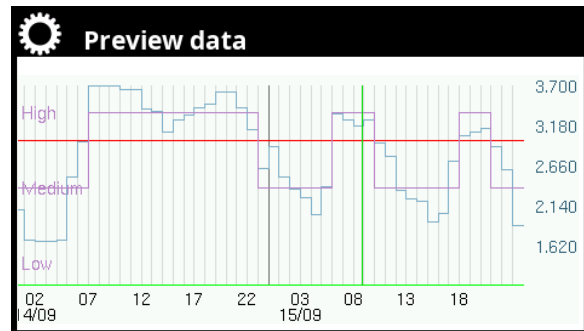
Width %

50 (0...200)

Enter code "4003" in the "Installer/Service/Coded settings/Code" menu to display the "Width %" menu line.

"Width" is the vertical price range where the electricity price is considered "Medium".

See also the "Example: Electricity price settings" section.



Menu: "Installer/Settings/Communication/El.prices/Preview data".



Menu: "Installer/Service/Coded settings/Code".

Example: Set. El. prices

This section shows an example for electricity price settings.

Electricity price calculation with and without limit value settings

The user can select whether or not to use the dynamic price calculation feature.

The example below shows what settings using the dynamic calculation feature (both with and without limit values) mean for determining the electricity price categories "High", "Medium" and "Low" :

Limit values entered

In this example, limit values are entered and dynamic calculation is selected.

- "Limit value high": SEK 3.50

Means that the "High" electricity price category is defined with the limit value as the lowest possible setting during the entire period.

- "Limit value low": SEK 1.50

Means that the "Low" electricity price category is defined with the limit value as the highest possible setting during the entire period.

No limit values entered

In the example, no limit values are entered and dynamic calculation is selected. The electricity price categories are defined by the calculation algorithms.

Set. El. prices

Price control: On

Regions: [Up Arrow]

Dynamic: Yes

Limit value high: SEK + 0 0 0 3 .5 0 0 0

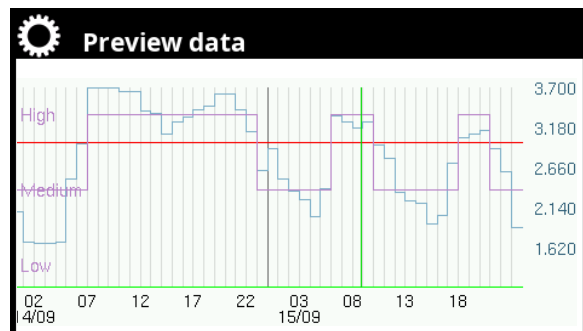
Limit value low: SEK + 0 0 0 1 .5 0 0 0

Default: High

Days in calculation: 10

[OK]

Menu: "Installer/Settings/Communication/El.prices".
Dynamic calculation with limit values.



Menu: "Installer/Settings/Communication/El.prices/Preview data".
Dynamic calculation with limit values.

Set. El. prices

Price control: On

Regions: [Up Arrow]

Dynamic: Yes

Limit value high: X 0 0 0 0 .0 0 0 0

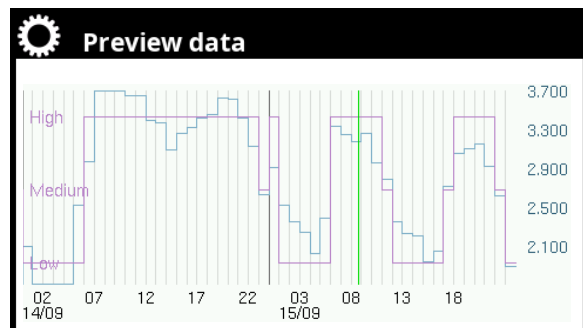
Limit value low: X 0 0 0 0 .0 0 0 0

Default: High

Days in calculation: 10

[OK]

Menu: "Installer/Settings/Communication/El.prices".
Dynamic calculation without limit values.



Menu: "Installer/Settings/Communication/El.prices/Preview data".
Dynamic calculation without limit values.



Example: Offset %

By increasing the "Offset %" value, the boundary between the "Medium" and "High" price is moved upwards.

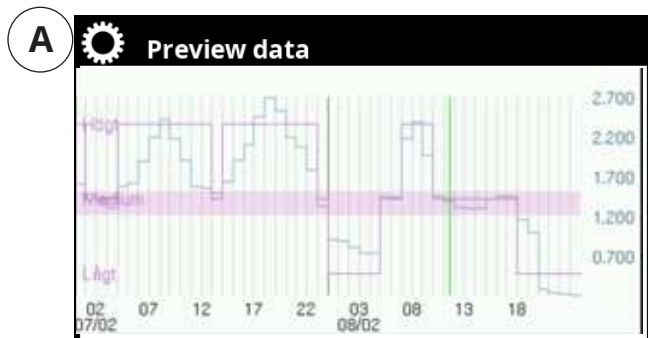
See the "Preview data" menus (A) and (B) below. The graphs reflect the settings in the "Set. El.prices" menu.

In "Preview data" menu (A), "Offset %" has been set to "0" (factory setting) and in "Preview data" menu (B), "Offset %" has been set to "100".

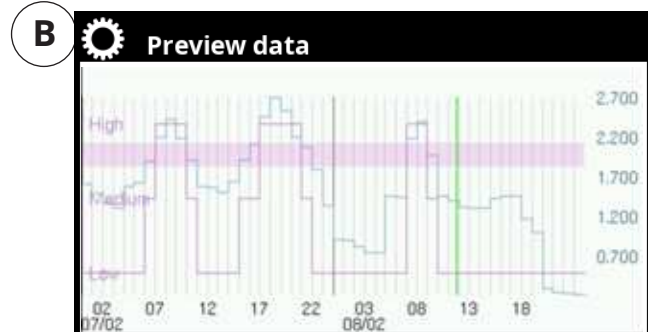
Note that at "Offset %": "100", the electricity price is determined to be "High" for shorter periods than at "Offset %": "0".

Parameter	Value
Price control	On
Regions	
Dynamic	Yes
Limit value high	SEK X 0 0 0 0 .0 0 0 0
Limit value low	SEK X 0 0 0 0 .0 0 0 0
Default	High
Days in calculation	2
Preview data	
Offset %	100
Width %	0

Menu: "Installer/Settings/Communication/El.prices".
Offset % = 100.



Menu: "Installer/Settings/Communication/El.prices/Preview data".
Offset % = 0.



Menu: "Installer/Settings/Communication/El.prices/Preview data".
Offset % = 100.

Example: Width %

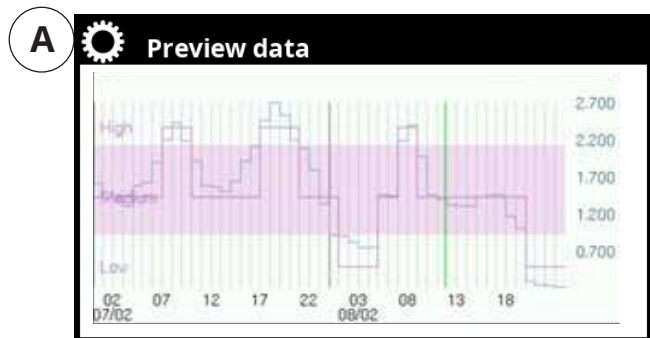
See the "Preview data" menus (A) and (B) below. The graphs reflect the settings in the "Set. El.prices" menu.

"Preview data" display menu (A) shows that the "Medium" price range becomes very large when both "Offset %" and "Width %" are set to the maximum values. Most of the time, electricity will then be considered "Medium" price.

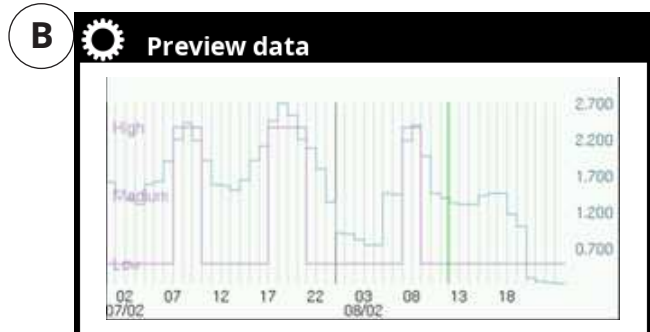
In "Preview data" display menu (B), "Width %" has been set to "0", which means that the "Medium" price range disappears and the electricity price is only considered to be "High" or "Low" depending on the average electricity price.

Price control	On
Regions	
Dynamic	Yes
Limit value high	SEK X 0 0 0 0 .0 0 0 0
Limit value low	SEK X 0 0 0 0 .0 0 0 0
Default	High
Days in calculation	2
Preview data	
Offset %	100
Width %	200

Menu: "Installer/Settings/Communication/El.prices".
Width % = 200, Offset % = 100.



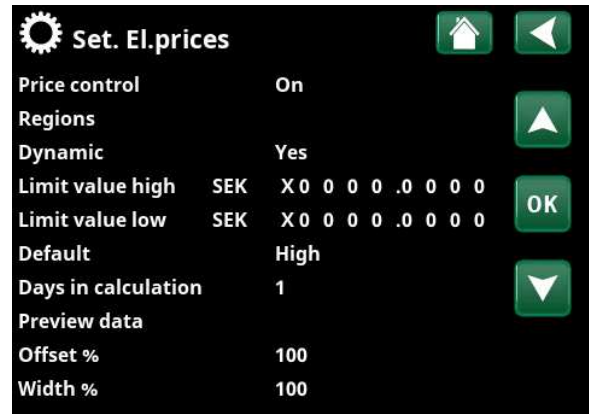
Menu: "Installer/Settings/Communication/El.prices/Preview data".
Width % = 200, Offset % = 100.



Menu: "Installer/Settings/Communication/El.prices/Preview data".
Width % = 0.

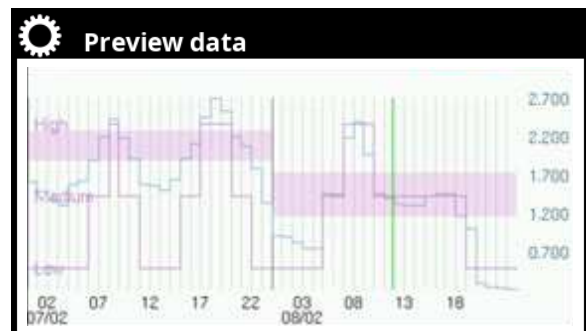
Example: Days in calculation

If "Days in calculation" is set to "1", the average price is renewed and calculated every day.



Menu: "Installer/Settings/Communication/El.prices".

Days in calculation = 1.



Menu: "Installer/Settings/Communication/El.prices/Preview data".

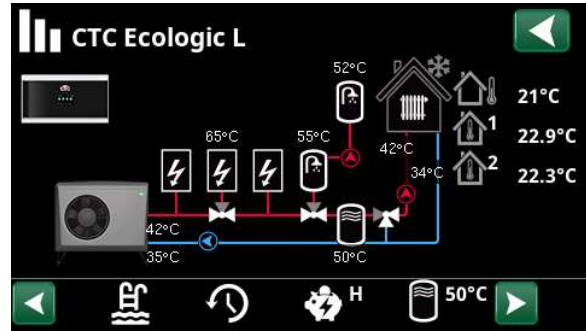
Days in calculation = 1.



Operation

To see the "Operation" menu for "El.prices", click the "El.prices" icon in the icon bar of the "Operation" main menu.

The status of the SmartGrid functions for each subsystem is shown in the "Operation" submenus.



Menu: "Operation" (CTC EcoLogic L).



El.prices

This menu is displayed if "El.prices" has been defined in the "Installer/Define/Communication" menu.

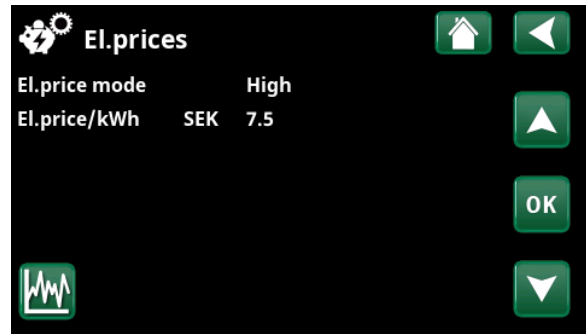
El.price mode **High**

Indicates the current price category ("High", "Medium" or "Low").

El.price/kWh **SEK 7.5**

Indicates the current electricity price in local currency.

Display the "Preview data" graph by clicking the "Graph icon" at the bottom-left of the menu screen.



Menu: "Operation/El.prices".

Activating SmartGrid functions

The SmartGrid functions are useful, for example, for easily increasing the temperature in the room or in the hot water tank (DHW tank) when the electricity price is low ("SmartGrid Low price") or alternatively for lowering the setpoint in the pool or blocking additional heat when the electricity price is high ("SmartGrid Blocking"). This is achieved by both activating/defining the current SmartGrid functions (as described in this section) and by adjusting the SmartGrid settings for the respective subsystem (heating circuit, hot water tank, pool, etc.) in the setting menus described in the "Settings: SmartGrid functions" section.

SmartGrid can be activated using the following methods:

(In normal mode, priority shifts to the next activation in the list)

1. Via digital inputs on the circuit board.
2. By setting a weekly schedule in which the time at which the different SmartGrid functions will be active is specified.
3. Using smart electricity price control via the app.

As well as being activated, the SmartGrid functions must also be set in the settings menu for the respective subsystem; see the "Settings: SmartGrid functions" section.

1. Digital inputs

The following can be defined as input signals:

- Terminal blocks K22–K25
- A wireless accessory in the SmartControl series
- BMS digital input 0–7

Firstly, assign a digital input to "SmartGrid A" ("SG A") and "SmartGrid B" ("SG B") in the "Installer/Define/Remote control" menu.

In the example, "SmartGrid A" has been assigned input "K22" and "SmartGrid B" has been assigned input "K23".

To achieve the SmartGrid function "SG Low price", input "K23" ("SG B") must be open and input "K22" ("SG A") must be closed.

K22 (SG A)	K23 (SG B)	Function
Off	Off	Normal
Off	Active	SmartGrid Low price
Active	Active	SmartGrid Overcapacity
Active	Off	SmartGrid Blocking

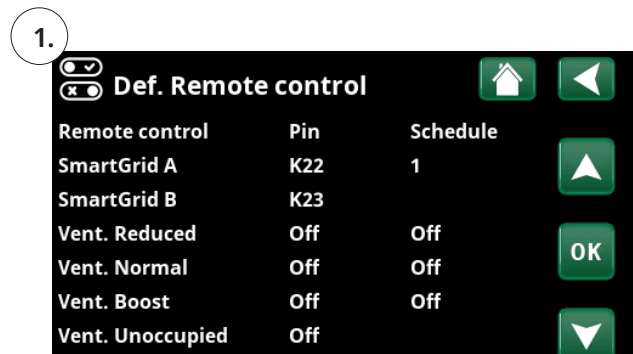
2. SmartGrid Schedule

In order for the "SmartGrid Schedule" menu line to appear in the "Installer/Settings" menu, SmartGrid A must first be assigned a weekly schedule (1–30) in the "Installer/Define/Remote control" menu.

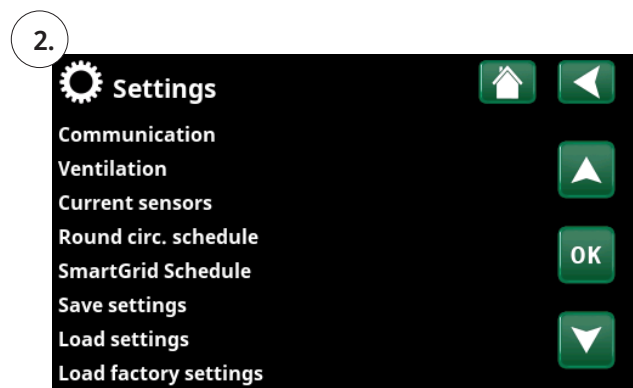
In the "SmartGrid Schedule" menu, set the times that the respective SmartGrid function will be active during the week.

In the example on the right, the "SmartGrid Blocking" function has been set to be active on weekdays between 7:30 am and 9 pm.

For more information on setting schedules, see the "Weekly program" section in the "Installation and maintenance manual".



Menu: "Installer/Define/Remote control".



Part of the "Installer/Settings" menu.



Menu: "Installer/Settings/SmartGrid Schedule".

Settings: SmartGrid functions

The setting menus (Installer/Settings/) for the subsystems* — *Heating circuit, Heat pump, Additional heat (electric heater), DHW tank, Pool, Cooling, Buffer tank, Upper and lower tank* — are used to specify what will happen when the SmartGrid functions are active for the subsystem (see "Activating SmartGrid functions" section).

The settings/setting ranges for the SmartGrid functions that are relevant for smart electricity price control; "SmartGrid Blocking" and "SmartGrid Low price" are listed below (the factory value for the SmartGrid functions is indicated in bold).

Heating circuit

- SmartGrid Low price °C **Off**/1...5 °C
- SmartGrid Blocking **Off**/On

Heating program

Comfort:

- SmartGrid Low price **Off**/On

Custom:

- SmartGrid Low price **Off**/On
- SmartGrid Blocking **Off**/On

Economy:

- SmartGrid Blocking **Off**/On

Heat pump

- SmartGrid Block. HP **No**/Yes

Additional Heat/Electric Heaters

- SmartGrid Block. immersion **No**/Yes

DHW tank/Lower tank/Upper tank

- SmartGrid Blocking °C **Off**/-1...-50 °C
- SmartGrid Low price °C **Off**/1...30 °C

Buffer tank

- SmartGrid Low price °C **Off**/1...30 °C

Pool

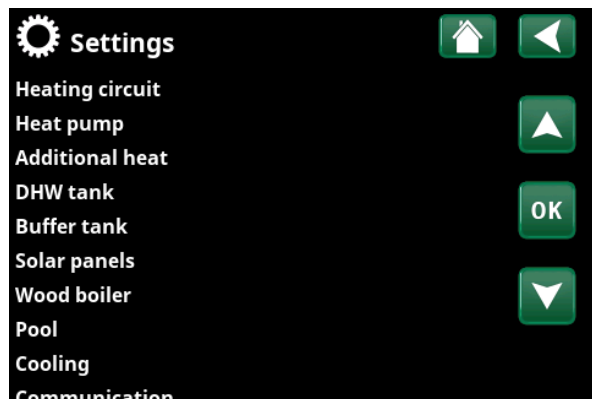
- SmartGrid Blocking °C **Off**/-1...-50 °C
- SmartGrid Low price °C **Off**/1...50 °C

Cooling

- SmartGrid Low price °C **Off**/1...5 °C



*Which subsystems can be defined depends on the system configuration/ heat pump model.



Part of the "Installer/Settings" menu for CTC EcoLogic.

Example: "SmartGrid function" settings

Set. Pool

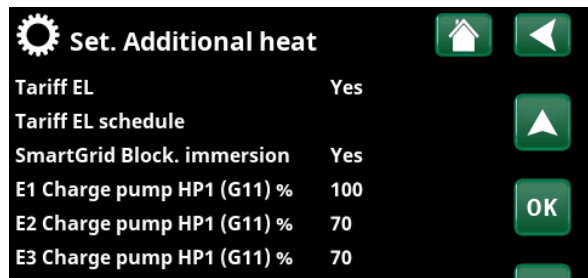
According to the settings in the "Set. Pool" menu, the pool setpoint will be increased by 5°C when the electricity price is low (when the "SmartGrid Low price" function is active) and the setpoint will be decreased by 10°C* when the electricity price is high (when the "SmartGrid Blocking" function is active).

Set. Additional heat

In the "Set. Additional heat" menu, it is specified that the electric heater will be blocked when the electricity price is high (when the "SmartGrid Blocking" function is active).



Part of the "Installer/Settings/Pool" menu.



Part of the "Installer/Settings/Additional heat" menu.

*The max. and min. temperatures have limits defined by the software.



Settings menus

Settings for subsystems are found in the "Installer/Settings" submenus.

The "SmartGrid Overcapacity" function is not used in electricity price control, but is described in the submenus below.

For more information, see the "Electricity price control via myUplink" section.

Set. Heating circuit

Select "Heating circuit" in the "Installer/Settings" menu and then the heating circuit to be set.

In the "Set. Heating circuit 1" menu, select by how many degrees the heating circuit setpoint is to be increased when the "SmartGrid Low price" and/or "SmartGrid Overcapacity" functions are active.

SmartGrid Low price °C Off (Off/1...5)

Setting to increase the room temperature at "Low price" energy price, via SmartGrid.

SmartGrid Overcapacity °C Off (Off/1...5)

Setting to increase the room temperature at "Overcapacity" energy price, via SmartGrid. This function is not used for electricity price control.

SmartGrid Blocking Off (Off/On)

"On" means the heating circuit is blocked at "High" energy price, via SmartGrid. If the outdoor temperature falls below the value set in the "Night reduction down to °C" menu, this function is not activated.

Program

Select "OK" in the "Program" menu line in the "Set. Heating circuit" menu to adjust the settings for the "Economy", "Comfort" and "Custom" heating programs. The selected program is marked with an "X".

Depending on the heating program, the following SmartGrid functions can be set:

SmartGrid Blocking Off (Off/On)

This menu line is shown for the "Economy" or "Custom" heating program.

"On" means that the heating program is activated when "SmartGrid Blocking" is active.

SmartGrid Low price* Off (Off/On)

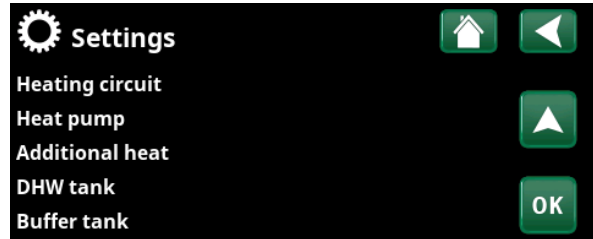
This menu line is shown for the "Comfort" or "Custom" heating program.

"On" means that the room temperature is increased according to the setting for "SmartGrid Low price °C" when "SmartGrid Low price" is active.

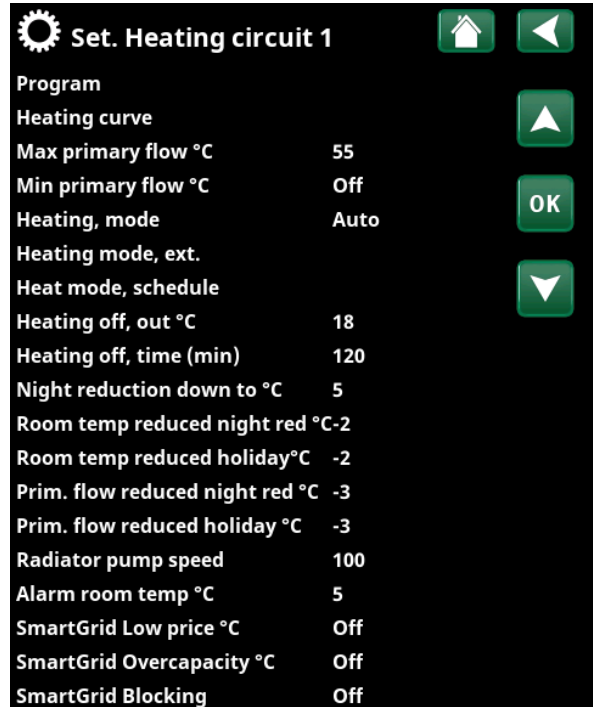
SmartGrid Overcapacity* Off (Off/On)

This menu line is shown for the "Comfort" or "Custom" heating program.

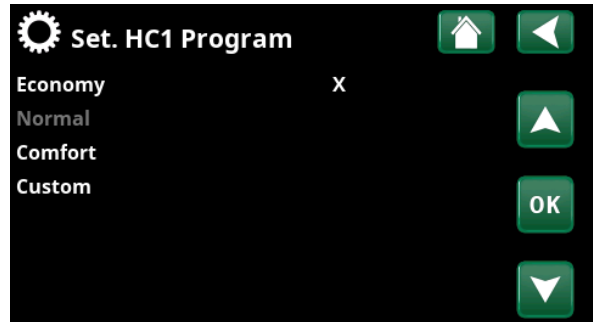
"On" means that the room temperature is increased according to the setting for "SmartGrid Overcapacity °C" when "SmartGrid Overcapacity" is active. This function is not used for electricity price control.



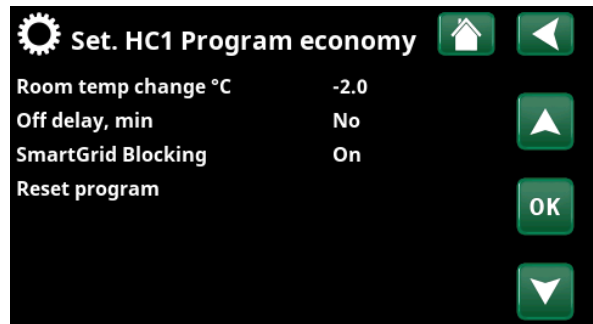
Part of the "Installer/Settings" menu (CTC EcoLogic L).



Part of the "Installer/Settings/Heating circuit/Heating circuit 1" menu.



Menu: "Installer/Settings/Heating circuit/Heating circuit 1/Program".



Menu: "Installer/Settings/Heating circuit/Heating circuit 1/Program/Economy".

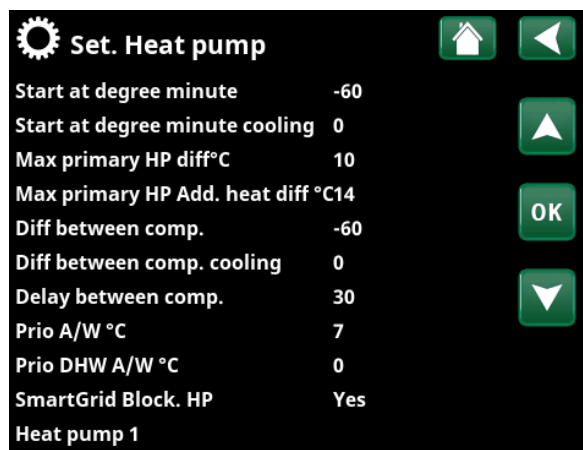
*The max. and min. temperatures have limits defined by the software.

Set. Heat pump

SmartGrid Block. HP No (No/Yes)

"Yes" means that the heat pump is blocked when "SmartGrid Blocking" is active.

The Tariff function can also be used to block the heat pump (via remote control). For more information, see the "Installation and maintenance manual".



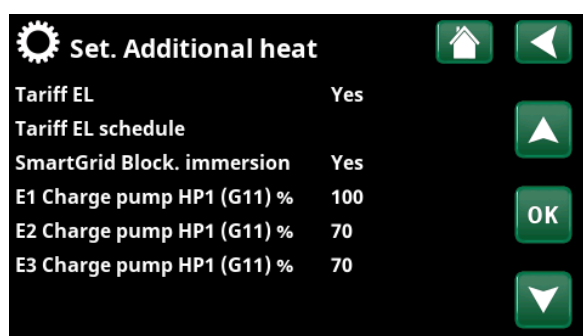
Menu: "Installer/Settings/Heat pump".

Set. Additional heat

SmartGrid Block. immersion No (No/Yes)

"Yes" means that the additional heat is blocked when "SmartGrid Blocking" is active.

The Tariff function can also be used to block the additional heat (via remote control). For more information, see the "Installation and maintenance manual".



Part of the "Installer/Settings/Additional heat" menu.

Set. DHW tank

SmartGrid Blocking °C* Off (Off/-1...-50)

The setpoint for DHW tank heating is decreased by the value set in this menu when "SmartGrid Blocking" is active.

SmartGrid Low price °C* Off (Off/1...30)

The setpoint for DHW tank heating is increased by the value set in this menu when "SmartGrid Low price" is active.

SmartGrid Overcapacity °C* Off (Off /1...30)

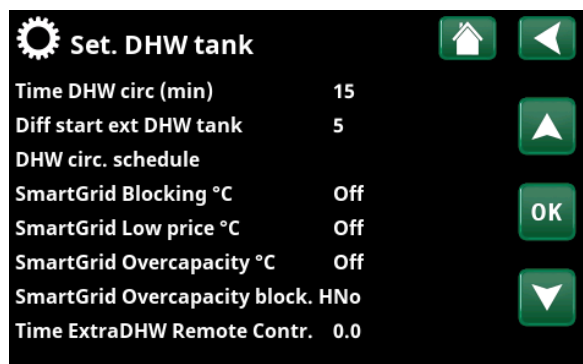
The setpoint for DHW tank heating is increased by the value set in this menu when "SmartGrid Overcapacity" is active.

This function is not used for electricity price control.

SmartGrid Overcapacity Block. HP No (No/Yes)

"Yes" means that DHW tank heating using the heat pump is blocked when "SmartGrid Overcapacity" is active.

This function is not used for electricity price control.



Part of the "Installer/Settings/DHW tank" menu.

*The max. and min. temperatures have limits defined by the software.

Set. Buffer Tank

This menu only applies to systems with a buffer tank (CTC EcoLogic System type 4-6) if a buffer tank has been defined.

SmartGrid Low price °C* Off (Off/1...30)

The setpoint for buffer tank heating is increased by the value set in this menu when "SmartGrid Low price" is active.

SmartGrid Overcapacity °C* Off (Off /1...30)

The setpoint for buffer tank heating is increased by the value set in this menu when "SmartGrid Overcapacity" is active.

This function is not used for electricity price control.

Set. Pool

SmartGrid Blocking °C Off (Off/-1...-50)

The setpoint for pool heating is decreased by the value set in this menu when "SmartGrid Blocking" is active.

SmartGrid Low price °C* Off (Off/1...50)

The setpoint for pool heating is increased by the value set in this menu at "Low price" energy price (when "SmartGrid Low price" is active).

SmartGrid Overcapacity °C* Off (Off /1...50)

The setpoint for pool heating is increased by the value set in this menu at "Overcapacity" energy price (when "SmartGrid Overcapacity" is active).

This function is not used for electricity price control.

Set. Cooling

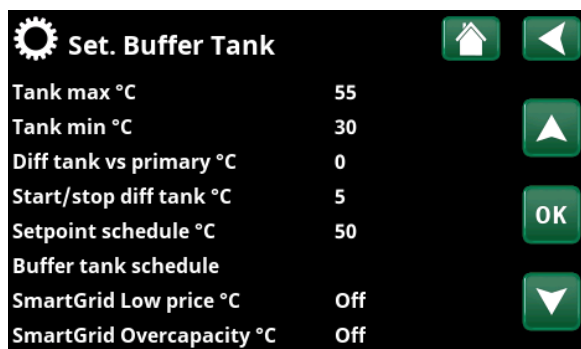
SmartGrid Low price °C* Off (Off/1...5)

The setpoint for room temperature is decreased by the value set in this menu when "SmartGrid Low price" is active.

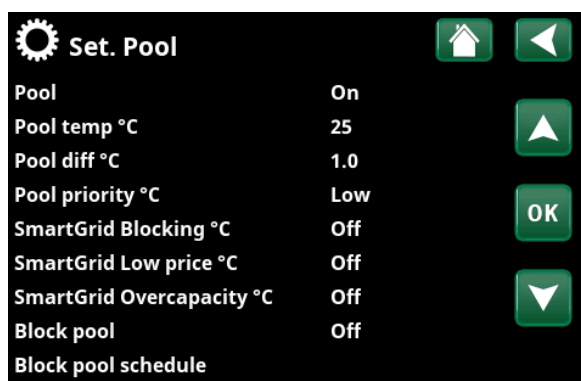
SmartGrid Overcapacity °C* Off (Off /1...5)

The setpoint for room temperature is decreased by the value set in this menu when "SmartGrid Overcapacity" is active.

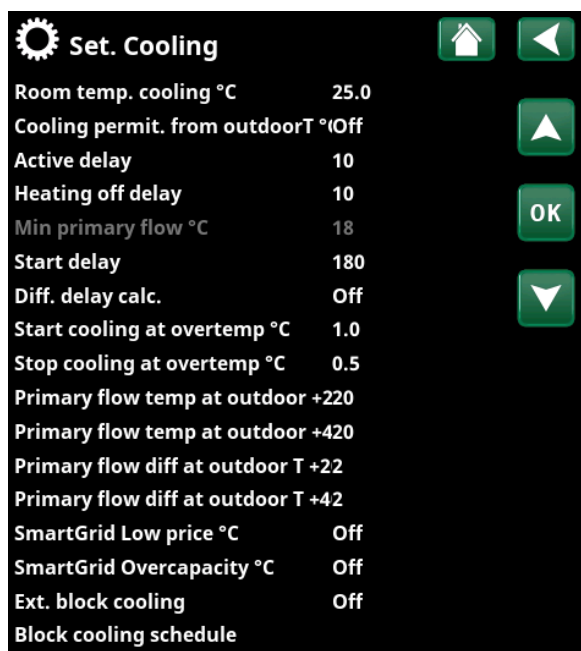
This function is not used for electricity price control.



Menu: "Installer/Settings/Buffer Tank".



Menu: "Installer/Settings/Pool".



Menu: "Installer/Settings/Cooling".

*The max. and min. temperatures have limits defined by the software.

