



Smart price Information and FAQ

www.thermia.se

What is Smart Price?

Smart Price is an additional service in Thermia Online that can plan and adapt the heat pump's heat and hot water production based on the hourly rate from the Nord Pool electricity exchange, by heating house and hot water a little more when the price is low and then managing to heat a little less when the electricity price is higher. This way, some of the electricity consumption can be shifted from times with a high hourly price to times when the electricity price is lower (and the supply of electricity is better).

The simplest saving – apart from via Smart Price – reduce the indoor temperature!

Also keep in mind a simple way to save energy is to lower the indoor temperature a little, which can make a big difference to the total energy consumption. This is easily done by adjusting the setting +/- number of degrees on the front of the heat pump or via the Online service, regardless of whether Smart Price is activated or not.



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BEFORE ACTIVATING THE SERVICE

Before you activate the service, there are a few things to consider. For the service to work, the heat pump and the heating system settings need to be correct. By correct settings, we mean that:

- 1) **Most of your underfloor heating/radiator thermostats need to be fully open (i.e. thermostats are set to ~max).** This is so that you can accumulate heat in the building and furnishings during the period with lower electricity prices, but also so that the heat pump otherwise risks stopping, for example, in a high pressure alarm as it tries to get a high output on a heating system that cannot receive it.
 - a. If you have **underfloor heating** that is heated by the heat pump, you need to adjust the temperature of any room thermostats at least a few degrees above the desired temperature.
 - b. If you have **radiators** that are heated by the heat pump, the thermostats should be set to maximum as much as possible.
- 2) **The heat pump's heat settings without Smart Price** (with open thermostats as above) must be set so that the indoor temperature does not fluctuate up and down depending on the outdoor temperature. (If the indoor temperature varies slightly depending on whether it is sunny or cloudy, this is not a problem for the functionality).

If the indoor temperature changes when it gets colder or warmer outside, you probably first need to adjust your "heat curve" that controls this. If you have underfloor heating and temperature-sensitive floors, also check the "max supply temperature" setting and lower it if necessary. If in doubt, refer to the user manual or contact your installer.

- 3) **Smart Price for hot water** may be unsuitable in certain systems and applications, and also not permitted, for example, in certain types of public buildings and the like, where a certain temperature in the hot water tank is required. This is because the temperature in the water heater with Smart Price during times of high electricity prices is lowered more than normal and can also be higher than normally set at a low electricity price.

A so-called "anti-legionella" function for hot water is activated on all residential heat pumps at the factory, which means that the temperature is raised approximately every 7 days to prevent harmful legionella growth, but if you have turned off this protection for some reason, we do not recommend using the Smart Price function for hot water.

Limitations

Thermia accepts no responsibility for any unforeseen side effects of the service, such as the need for a software update to access the service, support with internet connection or commissioning, adjustment of the heat pump, increased or changed energy consumption, unforeseen extra costs or similar.

The service is primarily intended for standard residential installations for permanent residents where the heat pump can be checked by the owner if necessary.

SERVICE ACTIVATION

Activation and technical prerequisites for activating the Smart Price feature

Heat pump models

The Smart Price service is supported by the following heat pump models:

- Atlas/Atlas Duo
- Calibra/Calibra Duo/Calibra Eco/Calibra Eco Duo/Calibra Cool
- Diplomat Inverter/Diplomat Duo Inverter/Diplomat Inverter Mini
- Athena
- Mega

More models may be added later.

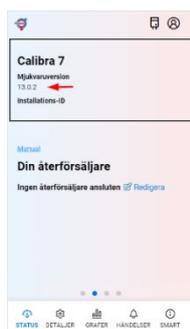
Online service

Your heat pump needs to be connected to Thermia's Online services using the *Thermia Genesis* app, which is available for download in the apps store.

Software version

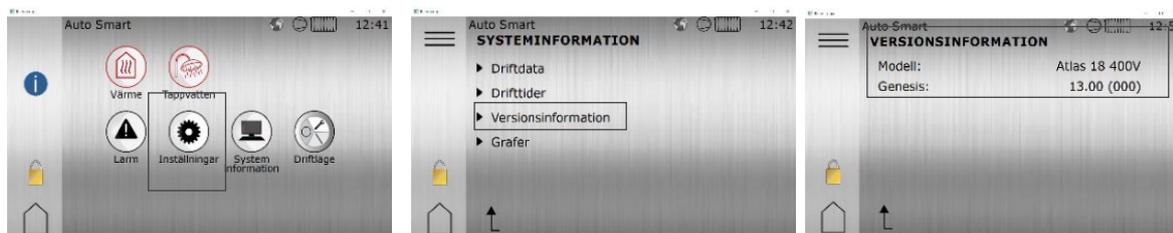
Your heat pump needs to have (at least) the Genesis 13.00 software installed.

Via the **Online service**, you can see whether you have the required software by looking at "SMART" in the menu bar.



If you do not see "SMART" in Genesis Online, you can check which software version you have by selecting the STATUS menu and swiping one step to the right. If the software starts at 12.01 or lower, you need to install a new software version before you can activate Smart Price.

You can see the software version of your heat pump via the **heat pump display** by selecting *Settings* in the main menu and then *Version information*.



Hourly price agreement with electricity supplier

In order to benefit financially from Smart Price by shifting some of your consumption to times with a lower electricity price, you need to have an hourly price-based contract with your electricity supplier (not to be confused with a variable monthly electricity price).

The heat pump must be located in Sweden

Your heat pump currently also needs to be installed and registered in Sweden in accordance with your Thermia Genesis account. Check by selecting "edit installation" in the user menu in the top right corner.



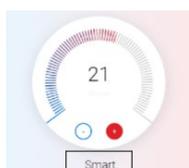
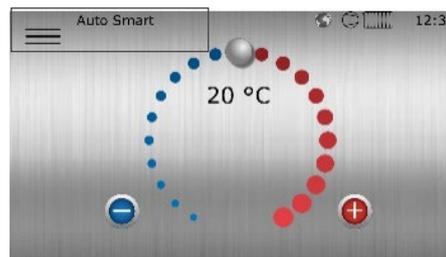
Activation of Smart Price

To use the Smart Price feature, the additional feature must first be activated via the Online Service. Go to the *SMART* tab in *Thermia* Genesis and follow the instructions.

How can I see if the Smart Price feature is activated?

The *heat pump display*, "**Auto Smart**" appears in the upper left corner of the display when Smart Price is active and affects the functionality of your heat pump.

NOTE! May take up to 15 minutes before this is visible after activation in the Online service. (If only Auto is displayed, the service is not active yet.)



If SMART is visible under the setting for the desired room temperature in the "Status" tab in the *Online service*, the SMART Price feature is enabled and affects the functionality of your heat pump.

GOOD TO KNOW

Good to know about Smart Price and what effects you can expect from smart control.

The importance of having electricity contracts with hourly prices

To benefit financially from the service, you must have an hourly price-based electricity contract (from any supplier). If you do not have an hourly price-based electricity contract, your electricity bill will probably be slightly more expensive with the Smart Price service activated, as the heat pump works a bit more in periods, which normally gives the heat pump a slightly lower efficiency and therefore a slightly increased energy consumption.

A prerequisite for being able to use varying electricity prices for heating is that you can in some way accumulate heat in the building and also allow the indoor temperature in the building to fluctuate a little more up down than usual.

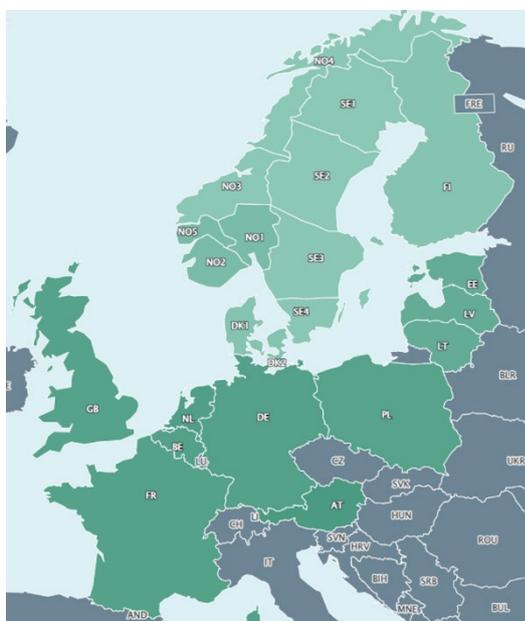
A common consequence of hourly price control of domestic heating is that it often gets slightly warmer at night and a little cooler during the day, as electricity is usually cheaper at night.

Level electricity price control: Smart Price impact on heating and hot water

It is possible to set the degree of impact of the electricity price for both heating and hot water separately in the app from 1–5, depending on personal preference between comfort and economy.

A good place to start would be by trying setting 3. The higher the value, the greater the impact of the electricity price and the potential saving will be greater, but at the same time there is a greater risk of affecting comfort (i.e. more variable indoor temperatures and a greater risk of running out of hot water).

Electricity price areas



Picture updated 2023-10-24

Electricity price areas is decided by transmission system operator and can be a whole country, or parts of it. When activating the Smart Price service, you need to select within which electricity price area your heat pump is installed.

Example:

Sweden is divided into 4 electricity price areas SE1-SE4(See picture and table below), while Finland as a country is one big area.

If uncertain which electricity price area to select, contact your local electricity network company.

How does the heat pump's electrical auxiliary heater work?

Smart Price has an in-built automatic function that is intended to reduce the probability that the in-built electric auxiliary heater will run together with the heat pump (compressor) when the building's heat demand, under normal circumstances, would have been met without the auxiliary heater. If the auxiliary heater is still needed, as much of the additional operation as possible is done during times of lower electricity prices. The function that attempts to avoid auxiliary operation may under certain circumstances cause the indoor temperature to be slightly lower than without Smart Price.

Properties of the building and heating system to accumulate heat

Different buildings have different conditions for accumulating energy, buildings with a lot of mass (in the building or interiors) that can be heated can accumulate more energy and often have good conditions for Smart Price. To accumulate heat energy, underfloor

heating in concrete, for example, is often better suited to handle and store heat than radiators.

Normally, both heat pumps and heating systems are designed to run around the clock when it is colder outside. In other words, it is not enough to run the heating for a few hours a day to obtain sufficient heating in the house and a comfortable indoor climate. Even if the heating system can take care of the extra output to be emitted during the period with lower electricity prices, Smart Price will never completely switch off the heat pump when it is colder outside, as the heat pump normally needs to work to a certain extent even when electricity is relatively expensive. However, the heat pump will work less when it is expensive and more when the electricity is cheap. So there is nothing wrong with the heat pump running when electricity is relatively expensive despite Smart Price being activated.

In order to provide heating to a sufficient extent at a lower electricity price, any thermostats (for radiators or underfloor heating) in the facility need to be adjusted to a higher temperature than usual (in practice, often at maximum) so that the building can absorb the heat during a low-cost period.

If, for some reason, you are not satisfied with the indoor climate or hot water with the Smart Price feature activated, you can try reducing the impact to a lower setting, or to switch the feature off temporarily. It is possible to switch off Smart Price both in the Thermia Genesis app and in the heat pump display (under "Settings" and "Smart Price"). The menu is only available in the heat pump after activation of the service in the app.

SETTINGS & ADJUSTMENTS

How can I adjust the indoor temperature setting when Smart Price is activated?

The indoor temperature is adjusted as usual by adjusting the setting +/- the number of degrees desired adjustment on the front of the heat pump or via the Online service.

How can I adjust the electricity price's impact on the heat pump when Smart Price is activated?

In the Thermia Genesis app under the "SMART" tab, you can set the **SMART Price impact on heating and hot water** under the SMART tab from 1–5 depending on your own preferences between comfort and electricity price control (these settings are not available in the heat pump's display, but only in the app).

How does the setting Smart Price impact work on heating?

With a strong focus on electricity prices (e.g. 5), the heat pump's operation is more affected by the electricity price compared to a lower setting. At a high impact, the temperature of the water sent to the heating system (supply temperature) will vary more (and thereby also your indoor temperature) than with a lower setting. A high setting on the **Smart Price impact on heating** can often lead to better economy, but also greater variations in the indoor temperature when (and after) the electricity price is high. As it often takes a number of hours for the heat pump to warm up, there may be a certain delay in the temperature due to the inertia of the building and the heating system.

If you have a heat pump that requires additional electricity in cold weather, a big impact can in some cases result in a slightly lower indoor temperature (or more auxiliary

operation during low-cost times) depending on how the heat pump is set and how the control evaluates the heating demand.

With a lower focus on the electricity price (e.g. **Smart Price impact heating** set to 1), the electricity price has less impact on the room temperature, resulting in a somewhat lower saving.

It is a good idea to experiment with different settings, but remember that it may take some time before your adjustment has full effect in the house. A good start could be to try setting 3.

How does Smart Price impact hot water?

In the event of a high **Smart Price impact on hot water** (e.g. 5), the heat pump will wait longer to start generating new hot water when it is expensive and then also produce less hot water, which means that the amount of hot water available can be lower in certain periods when electricity is expensive. However, after periods with lower electricity prices, you can often have more and warmer hot water available, as the heat pump tries to produce more hot water at a lower electricity price.

High impact can result in the hot water sometimes running out and not being suitable if you use a lot of hot water when the electricity price is very high. For those who accept that the hot water supply is occasionally a little lower (typically in the evening after the price of the day has been high), a high degree of impact on the hot water may be suitable.

With a low impact (e.g. 1), the risk of the hot water running out will be lower, compared to if you have a higher impact degree. With a low setting, the heat pump will be more likely to produce hot water compared to if you have a higher impact degree.

If you have smart control of hot water activated, your regular selection of hot water modes (economy/normal/comfort) is blocked in the heat pump's display and in the app, if applicable, and replaced by smart control. Even with a low setting of the **Smart Price impact hot water**, comfort may occasionally be lower compared to not having had Smart Price activated, and if you do not want the hot water to be controlled by the feature, the smart control can be deactivated.

The periodic hot water increase (anti-legionella) normally carried out each week is still active and is carried out in conjunction with normal hot water charging up to one day earlier than usual, provided that hot water charging occurs at a relatively low electricity price.

Open thermostats

To work well with Smart Price, it is important to have radiator thermostats as open as possible. When electricity is relatively "cheap", it is important to accumulate energy in the building, and radiator thermostats are not shut off and counteract Smart Price. The advantage of the building being heated a little extra before an expensive period is that you should not have to heat the building as much when it is expensive.

TROUBLESHOOTING & FAQ

Q: I find that the hot water is not enough when Smart Price is activated

In the Online service under the "SMART" tab, you can set the degree of impact of the SMART Price feature with focus on hot water.

Priority hot water allows you to set how much the hot water temperature should be affected by the electricity price with regard to focus on comfort or economy. With a focus on economy, the electricity price has a greater impact on the hot water supply due to increased savings but less comfort. With a focus on comfort, the electricity price has less impact on the hot water supply due to increased comfort and less savings.

Q: Is there a risk of increased electricity consumption?

Yes, there is but normally at a lower cost. Smart Price aims to shift some of the energy consumption of the heat pump (heating and hot water) to times when the electricity price is lower. The cost of heating and hot water is therefore normally lower with Smart Price activated if you have an hourly price agreement. However, it is likely that your consumption measured in kWh will be slightly higher than without Smart Price, even though the cost will normally be lower, as the heat pump works more during cheap hours and less during expensive hours.

If you run smart control, your consumption may also be a little higher than the estimated one, but since the average cost of the purchased electricity may be lower, it will still normally be a good saving.

If an electrical auxiliary heater is required, the auxiliary heater will be controlled a little differently than normal, which in some cases can contribute to more auxiliary heater operation, but primarily at times when the electricity is relatively reasonable.

(If you want to focus instead on reducing consumption in kWh and are willing to live with a lower indoor temperature, you can also save up to approx. 10% of the energy consumption for heating by reducing the indoor temperature of the heat pump by 1 degree.)

Q: Can I use Smart Price in my holiday home?

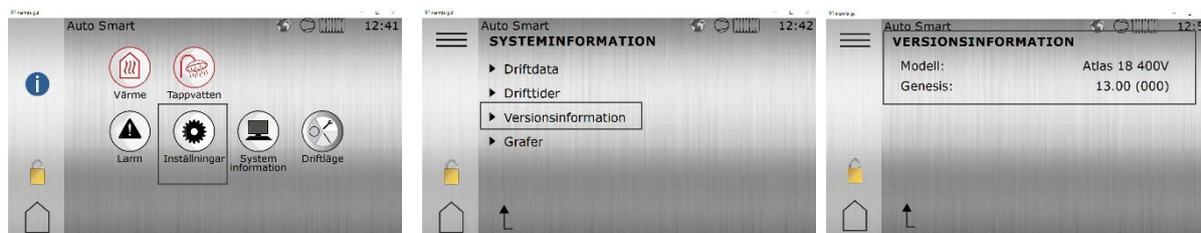
Smart Price as a feature does not really make any difference as to whether someone lives in the house or not, but it is good to bear in mind that if, for example, the temperature is set lower than normal, the risk of frost damage to the property increases if Smart Price lowers the temperature lower than set during times of higher electricity prices. Insurance companies may also have a minimum temperature that they accept without deduction for compensation in the event of claims.

Q: What heat pump do I have at home?

- If you have already connected your heat pump to the Online service, you can see this on the status tab, the model name is on the line above Software version.
- If your heat pump is not yet connected to the Online service and is manufactured after 2015, you can normally find the heat pump's model name on a nameplate located on top of the heat pump.

Q: How do I know which software version I have?

To see which software version your heat pump has, go to **Settings** in the main menu and then **Version information**.



Q: How do I update my heat pump's software version to at least version 13.00?

Speak to your heat pump installer, who can help you with the update (the installer normally charges a fee for this). In the future, the idea is that it will also be possible for software to be updated by consumers.

Q: How does my room sensor work with Smart Price?

If you have an active Thermia room sensor connected to the heat pump (not to be confused with room thermostats for e.g. underfloor heating that is not connected to the heat pump) and Smart Price active, the room sensor will continue to try to keep the temperature of your set temperature, at the same time as Smart Price controls the heat pump against the electricity price. Running an active indoor sensor will give you a more even indoor temperature, but will partly reduce the electricity price's regulation of the heat pump. If you want Smart Price to control more with an active room sensor, you can set the room sensor's impact in the heat pump menu under settings/room sensor to e.g. 1-2, or set it to "passive" mode in the heat pump's display or app, which means that it is not having an impact.

Q: How does the extra hot water feature work together with Smart Price?

The "Boost" feature for hot water that enables a temporary extra amount of hot water can be activated manually even while Smart Price is activated. Remember that activation of "Boost" forces the heat pump to temporarily produce more hot water, which also leads to a temporary increase in electricity consumption, regardless of whether the electricity price is high or low.

Q: I can't select hot water operating mode when Smart Price is activated

When the Smart Price feature is activated, it is not possible to make adjustments to certain settings due to the fact that these settings have no effect on the heat pump's functionality while Smart Price is activated.

Q: Who can activate and adjust settings for a Premium service such as Smart Price?

Only users in the Online service with *User access* to the specific heat pump can activate a premium service. In the *User access* menu, you can see which users are authorised for your heat pump.

Q: Why does the heat pump run when the electricity price is high?

If necessary, the heat pump will also operate when the electricity price is high, but it will work less at a high electricity price.

Q: Dimensioning and calculation data?

If you have received an HPC calculation (dimensioning report) for your facility, the calculation is not adapted for your Smart Price feature. The saving in kWh will be lower

with Smart Price, as Smart Price will consume more purchased energy, but with the aim of reducing costs.

Q: I have an extra buffer tank for heating, can I use it for Smart Price?

As a customer, it can be difficult to know exactly what kind of system you have connected, but if the heat pump is directly connected to one or more storage tanks for heating (not hot water) and which also has a mixing valve that controls the temperature out of the heating system connected to the heat pump (which Thermia often calls "buffer tank type 1"), this is supported in Smart Price. What Smart Price can do in this system is to supercharge the tank before the electricity price increases with a little extra heat energy, which can then be used after the price of electricity has gone up. The amount of heat that is stored in the tank depends on the development of the electricity price at the time and the temperature required by the heating system.

However, in order to maintain a long service life for the heat pump, the temperature in the tank does not run up so high, as high flow temperatures for a long period of time in experience are considered to contribute to higher wear on the heat pump.

Q: Do I shorten the lifetime of my heat pump by using the Smart Price feature?

A heat pump normally benefits most from relatively constant operating modes with relatively low supply temperatures during most of the operating time. With Smart Price, the heat pump runs a little harder at certain times and less at certain times, as this is a prerequisite for being able to move energy consumption to times with relatively low electricity prices. Smart Price has been developed with extensive knowledge of heat pumps, weighed and balanced with consideration to both make it possible to save money and at the same time maintain the heat pump's service life over time.

Because we know how our heat pumps behave and what is not good for the heat pumps, with Smart Price we have significantly better conditions for giving the heat pump a long life compared with other less integrated solutions for electricity price control. The way we control the heat pump with Smart Price is not only a balance between savings and comfort, we also strive to ensure that the heat pump has a long and reliable service life, just as we always do.

Q: How do I turn off the Smart Price feature?

Smart Price is activated and deactivated primarily via the Online service under the "Smart" tab.

Temporary deactivation

If you want to temporarily switch off the feature, it is also possible to switch off the heating or hot water function individually via the *heat pump's display* in the "Smart Price" menu under Settings.



Deactivation via Thermia Genesis, if the heat pump has the "online" status

Deactivation of Smart Price via the Online service, when the heat pump has the online status, takes place in parallel with the activation box being deselected. The activated Smart Price functionality is stopped immediately and the heat pump returns to operation as per previous settings.

Deactivation via Thermia Genesis, if the heat pump has the "offline" status

Deactivation of Smart Price via the Online service, when the heat pump has the offline status, takes place with a certain delay. The activated Smart Price feature is cancelled when the existing projection in the heat pump has been completed. The heat pump automatically returns to operation according to previous settings when Smart Price has been run.

Every house and installation is unique. This document has been prepared as a guide and help for frequently asked questions for the most common customer situations and installations. Remember to read your product's user manual to see any specific instructions linked to different functions and also take into account other information that you have received during installation.

Thermia Heat Pumps accepts no responsibility for typographical or printing errors in this material, and the information in the material may not be applicable in all cases. The material will be updated continuously.

