

Manual: QA Spot Basic

Simple spot control of selling photovoltaic surplus — postponing home battery charging in favour of selling at advantageous spot prices and disabling selling at negative prices.

Introduction

QA Spot Basic is a simplified spot control for installations with a hybrid inverter and a home battery, where the user **sells surplus at spot prices but buys electricity at a fixed (FIX) price**. The application reads the daily spot prices from the electricity market operator (OTE), compares them with the configured buy and sell prices and, according to the expected amount of produced energy that will not fit into the battery, plans in which hours it pays to sell the surplus.

The application works with two strategies:

- **Min. SPOT sell price** — disabling selling to the grid in hours when the spot price is below the configured minimum value, so that the surplus is not sold at a loss. The resulting sell price is the spot price minus the feed-in fees (**Setting Prices** card), so it can be negative even with a positive OTE price.
- **Sell PV SPOT, Charge from PV** — in the hours with the highest spot price (typically in the morning and in the afternoon), the production surplus is sold to the grid and home battery charging is postponed to hours with a low price. The user thus sells the energy at a higher price and charges the battery from their own production later; the later charging depends on the actual production and consumption of the house.

The application controls the inverter through the inverter QA. Reading of the OTE prices is part of the application — no other QA application for spot prices is needed. For full spot control (buying and selling on the spot market, appliance control, charging planning), the QA Spot Pro application is intended.

For clear visualisation and access to measurement history and graphs, we recommend connecting to Mervis SCADA.

IMPORTANT WARNING: The application reads spot prices from a third-party service — the electricity market operator (OTE).

The transfer of values and the update frequency depend on the OTE service and its terms.

The functionality of the application and the support options of Smart Home and Energy depend on the availability, capabilities and terms of this service. If it is changed, restricted or discontinued, the application may stop working completely or partially.

Smart Home and Energy does not guarantee the availability, completeness or correctness of data provided by a third party.

Upstream and downstream applications

Upstream applications

The application does not require any upstream QA application; it reads the spot prices from OTE itself.

Downstream applications

Mandatory:

- **Inverter QA** (hybrid inverter with a home battery) — the application takes over the battery state from it and through it controls the selling of surplus and battery charging.

Installation and initial setup of the QA

Installation

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

- **Installation via the SHE Installation Application (recommended)** — the application is installed into the unit automatically and allows future automatic updates. It requires the “superuser” credentials for the unit. See the separate “Installation Application” manual for details.
- **Standalone installation file (*.fqax)** — install the file manually into the unit according to the unit manufacturer's instructions (logged in as “superuser”). This option does not allow automatic updates.

After a successful installation, the set of application cards (tiles) appears on the unit desktop in the **SPOT** section: **SPOT Basic Control** (main card), **Energy overview**, **Price overview** and **Setting Prices**. Furthermore, tiles with values are displayed:

- **Pred.Bat.Today** (kWh),
- **Price Buy Current** and **Price Sell Current** (CZK/kWh),
- **Battery SOC** (% and kWh),
- **Sell Hour**, **Buy Hour**, **Sell Today** and **Buy Today** (kWh),
- **Amount Buy Hour**, **Amount Sell Hour**, **Amount Buy Today** and **Amount Sell Today** (CZK).

Operating prerequisites

- **Controller:** Fibaro HC3 or HC3L (or Yubii Home / Home Pro) with internet access (reading of OTE prices).
- **Hybrid photovoltaic power plant with a home battery** and an installed **inverter QA** with support for sell and charging control.
- A contract for selling surplus at **spot prices**; electricity can be bought at a fixed (**FIX**) or a spot price.

Opening the application control card

To open the application card in a web browser, move the cursor over the application tile (e.g. **SPOT Basic Control**, **Setting Prices**) and click the eye icon in its top-right corner. The application card opens.

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

User settings

Initial setup procedure

1. "Setting Prices" card

- Set the type and amount of the buy price (typically **FIX**: commodity, other fees, VAT) and the sell price (typically **SPOT**: other fees, VAT).
- Save with the **SAVE** button.

2. "Price overview" card — check the resulting prices and verify that the OTE prices are being read (rows **Today**, **Today next**, **Tomorrow**).

3. "SPOT Basic Control" card

- Check that the current battery state from the inverter is displayed.
- Set **Min. SPOT sell price** and, for the **Sell PV SPOT**, **Charge from PV** strategy, the **Reserve** and **Battery SOC Min** values (the values in the screenshots are an example, not a recommendation).
- Enable both strategies with the **ENABLE** button and select the **AUTO** mode.
- The main card has no **SAVE** button.

4. In the **Energy plan** table, check that the strategies (**DISABLE SELL**, **PV->SPOT**) are displayed for the hours. An empty **Strategy** column means that the application does not intervene in the given hour — this is not an error.

"Setting Prices" card

Prices are entered **excluding VAT**; VAT is set separately.

Buy price settings

- **TYPE OF BUY PRICE** — **FIX** (fixed price according to the contract) or **SPOT** (market prices).
- **Commodity High tariff FIX** — agreed price for the electricity commodity in CZK/kWh excluding VAT (e.g. 3.00 CZK).
- **Other fees High Tariff** — distribution and other services in CZK/kWh excluding VAT (e.g. 1.40 CZK).
- **VAT** — 21 % for households and entities without VAT deduction, 0 % for entities with VAT deduction.

Sell price settings

- **TYPE OF SELL PRICE** — **SPOT** (selling at OTE spot prices) or **FIX**.
- **Other fees** — selling fee according to the contractual relationship in CZK/kWh (e.g. 0.30 CZK); with a monthly fee, enter 0.
- **VAT** — the tax on selling is currently 0 % in the Czech Republic.

Set the values with the -- / - / + / ++ buttons; the **0** button (for fields that have it) resets the value to zero. The **Run status** row shows the application run state. Save the settings with the **SAVE** button. The application version is shown at the bottom of the card (e.g. sheSpotManagementBasic 1.03.01).

"Price overview" card

- **Buy prices overview** — **Type** (**FIX** / **SPOT**), **Total** (resulting buy price in CZK/kWh), **Commodity** and **Other**.
- **Sell prices overview** — **Type**, **Total** (resulting sell price in CZK/kWh after deduction of fees; it can be negative with a low spot price), **Commodity** (current spot price) and **Other**.
- **OTE Overview** — **Current** spot price (CZK/MWh) and **Min** / **Max** prices for **Today**, **Today next** and **Tomorrow**.

The card is for information only.

“SPOT Basic Control” card

The main card — control state, settings of both strategies and the energy plan. The header shows the current state (e.g. **DISABLE SELL** = selling disabled).

- **Control Mode** — current mode (e.g. **AUTO-ON**) and state (e.g. **Sell disabled**). The **Planned** rows show for which hours of the current day the individual strategies are planned (e.g. **Sell disabled: 13; Sell PV expensive, Charge from PV cheap: 14,15,16,17**).
- **AUTO** — automatic control according to the plan; **MANUAL-OFF** — control by the application switched off; the inverter can be set manually.
- **Inverter overview** — **Battery SOC** (current charge in % and kWh) and **Battery Level Min Max** (limits set in the inverter).
- **Energy overview** — **Energy Over Battery Today**: predicted production surplus that will not fit into the battery today (kWh).

“Min. SPOT sell price” strategy

Disabling selling to the grid in hours when the spot price is below the configured minimum value — protects against selling at zero or negative prices.

- Strategy state (**Active** / Inactive) and the hours in which it applies (e.g. 13).
- **Min. SPOT sell price** — minimum OTE spot price (in CZK/MWh) below which the surplus is not sold.
 - To avoid selling at a negative resulting price, set it at least to the amount of the selling fee **Other fees** from the **Setting Prices** card (e.g. a fee of 0.30 CZK/kWh = 300 CZK/MWh; at OTE 447 CZK/MWh the resulting price is 0.15 CZK/kWh and selling is enabled).
 - Set the value with the buttons below the value (-- / - / 0 / + / ++).
- **Strategy Enable** — state (Enabled); use the **DISABLE** / **ENABLE** buttons to switch the strategy off or on.

“Sell PV SPOT, Charge from PV” strategy

Selling the production surplus in the hours with the highest spot price and postponing battery charging to hours with a low price.

- Strategy state (e.g. **Inactive-Planned** = the strategy is planned for the given hours, it is not running right now) and the hours for which it is planned (e.g. 14,15,16,17). The **Enable** setting of the strategy (buttons below) and its currently running use are two different things.
- **Energy to Sell Today** — energy the application can sell today (kWh); it corresponds to the surplus over the battery after deduction of the reserve.
- **Energy Sell Plan** — energy the plan has distributed into the hours enabled for selling (kWh); it can be lower than **Energy to Sell Today**.
- **Reserve** — part of the predicted surplus that is not included in the energy to be sold (kWh, e.g. 4 kWh); set the value with the buttons below the value (-- / - / 0 / + / ++).
- **Battery SOC Min** — configured lower battery charge limit (%) for the control of this strategy; set the value with the - / + buttons.
- **Enable** — state (Enabled); use the **DISABLE** / **ENABLE** buttons to switch the strategy off or on.

Energy plan

Table by hours for today and the following day:

- **Hour**,
- **OTE** (spot price in CZK/MWh),
- **Buy** and **Sell** (resulting prices in CZK/kWh according to the **Setting Prices** card),
- **Energy** (predicted balance in kWh: positive = surplus, negative = shortage),
- **Strategy** (**DISABLE SELL** = selling disabled, **PV->SPOT** = selling the surplus on the spot market).

The current hour is marked with an arrow; the lowest price of the day is highlighted in green, the highest in red. Dashes for tomorrow's hours mean that the OTE prices for tomorrow have not been read yet; if they persist, use **UPDATE OTE** and check the message below the button.

The time of the last price reading is shown below the table. Use the **UPDATE OTE** button to read the prices manually; the row below the button shows the result (Valid Answer).

"Energy overview" card

- **Amounts Overview [CZK]** – **Sell** and **Buy** for the current hour, for today and in total.
- **Energy overview [kWh]** – **PV** (production), battery **Charge** and **Discharge**, **Load**, **Sell** and **Buy** for the current hour, for today and in total.

The card is for information only.

Tiles with values

The following tiles are displayed on the desktop:

- **Pred.Bat.Today** (predicted surplus over the battery today, kWh),
- **Price Buy Current** and **Price Sell Current** (current prices in CZK/kWh),
- **Battery SOC** (% and kWh),
- energy and amounts of selling and buying per hour and per day (**Sell Hour**, **Buy Hour**, **Sell Today**, **Buy Today** in kWh and **Amount Sell Hour**, **Amount Buy Hour**, **Amount Sell Today**, **Amount Buy Today** in CZK).

The meaning of each symbol on the tile is displayed when you move the mouse cursor over the symbol.

Notes

- The application is intended for users who sell surplus at spot prices and buy at a fixed price. For full spot control of buying and selling, QA Spot Pro is intended.
- For clear visualisation and access to measurement history and graphs, we recommend connecting to Mervis SCADA.