

FEMS App Grid-Optimized Self-Consumption

Version:2023.4.1

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1. Introduction

Dear customer,

Thank you for choosing the "FEMS App Grid-Optimized Self-Consumption". You are welcome to send us your suggestions so that we can further improve the quality of our products.

2. App activation

If you have purchased a Symphon-E electrical energy storage system from Heckert Solar, the app is already included and pre-installed.

System	Symphon-E
App pre-installed	

If you have purchased another electrical energy storage system that does not have the app pre-installed, you will have received a 16-digit license key when you ordered the "FEMS App Grid-Optimized Self-Consumption". You can use this license key in the EMS App Center to install the app.

3. FEMS App Grid-Optimized Self-Consumption

The "FEMS App Grid-Optimized Self-Consumption" is an advanced version of self-consumption optimization. It uses forecasts of local power generation and power consumption to optimize the charging behaviour throughout the day. This results in a flatter feed-in curve and avoids power losses due to PV curtailment as far as possible.

As soon as the "FEMS App Grid-Optimized Self-Consumption" has been activated on your EMS, you will see this widget in your monitoring:



Figure 1. Widget — Initial operation

If the app has already been activated for some time, you will see a widget similar to the one below:



Figure 2. Regular operation — Widget

4. Overview

The following information can be viewed in the overview:

- Mode: Indicates the current grid-optimized charging mode:
 - Manual
 - Automatic
 - \circ Off
- Status: Indicates the current status. A distinction is made between the following states:
 - Loading limit active
 - $\circ~$ End time not calculated



This condition exists, for example, if the app has been in operation for less than one day (see Widget — Initial operation)

- Feed-in limitation is avoided
- No charging limit active
- $\circ\,$ No limitation possible (restriction by controls with higher priority).
- $\,\circ\,$ End time of limited charging exceeded.
- Electrical energy storage already full
- Maximum charging: Indicates the current maximum charging of the electrical energy storage.

• End time of the restricted charging: Time until the restricted charging should continue.

5. Extended display

Click on the widget to open the detailed view of the EMS app:

and optimized ondrying			0
State		Charging de	layed
Storage capacity (only visible for adm	in)	44,00	0 Wh
Maximum allowed grid feed-in	,	31.5	80 W
		,-	
Mode			
(1)	244	(1)	
MANUALLY	AUTOMATIC	OFF	
The charging does not take place over a longer period of time	with the maximum amount for a	i few hours, but steadi	ily
The charging does not take place over a longer period of time Expected state of charge Without avoiding the maximum grid f	e with the maximum amount for a	n few hours, but steadi	il y
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Further information is provided here.

• Maximum permitted grid feed-in: Maximum power (of the PV system) that may be fed into the grid.



This value is either specified initially when the order is placed or recorded during commissioning. If this value has changed, it can be changed by the installer in this detailed view.

There are three different operating modes:

• Manual: The time at which the electrical energy storage should be fully charged must be set manually.



Figure 4. Operating mode — Manual

In this case, the default setting of 17:00 was used.

• Automatic: The time at which the electrical energy storage should be fully charged is determined by automatic calculation.





• *Off: Grid-optimized charging is deactivated. The control of the electrical energy storage switches to selfconsumption optimization. The maximum grid feed-in is still taken into account. Mode

lode		
ل	*	Ċ
MANUALLY	AUTOMATIC	OFF

Figure 6. Operating mode - Off

6. State of charge of the electrical energy storage

In this view, the current and expected State of Charge of the electrical energy storage is displayed over time.



Without avoiding the maximum grid feed-in





7. Willingness to take risks

In this view, you can choose between three different types of readiness to assume risks:

- Low
- Medium
- High

Risk propensity

LOW

MEDIUM

HIGH

Figure 8. Willingness to take risks

7.1. Low

Risk propensity

		LOW	MEDIUM	HIGH
	Comparatively early charging of the battery			
	Υ	Higher probability th	nat the battery is fully cha	irged
	\checkmark	Lower probability th	at curtailment of the PV i	nstallation is avoided
Figure 9. Risk-s	hy			

- Very high probability that the electrical energy storage will be fully charged.
- Greater probability that the PV curtailment will take effect because the electrical energy storage system is already fully charged.

7.2. Medium

Risk propensity

	LOW	MEDIUM	HIGH		
Com	Comparatively even charging of the battery				
¥	High probability that	t curtailment of the PV system	em is avoided		

Figure 10. Medium level of risk

- High probability that the electrical energy storage will be fully charged.
- Low probability that the PV curtailment will take effect because the electrical energy storage system is already fully charged.

7.3. High

Risk propensity

LOW	MEDIUM	HIGH

Comparatively late charging of the battery

- Lower probability that the battery is fully charged
- Higher probability that curtailment of the PV installation is avoided

Figure 11. High willingness to take risks

- Lower probability that the electrical energy storage will be fully charged.
- Very low probability that the PV curtailment will take effect because the electrical energy storage system is already fully charged.

7.4. History

The "History" tab can be used to view the behavior of Grid-Optimized Charging over time.





If the app has only just been put into operation, the historic view will for sure take more time to unfold.





8. Contact

For support, please contact:

Symphon-E Service

Telephone service: +49 (0) 371 45 85 68 - 100

E-mail service: symphon-e@heckert-solar.com

9. Directories

9.1. List of illustrations

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Figure 13. History incomplete