Version 1.2 Translation of the original appendix to the instruction manual



Appendix to instruction manuals StoraXe PowerBooster GSS StoraXe Storage Systems SRS

EMS StoraXe[®] Machine Interface

Interface description for StoraXe[®] battery storage systems SRS and GSS



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1 General information

1.1 General information

This instruction manual explains how to use a StoraXe[®] storage system via the "EMS StoraXe[®] Machine Interface" web interface.

Read these instructions carefully before using and store for future reference.

The manual contains important information about the product.

Hand over the manual to all users (= persons with access) together with the product.

1.2 Relevant device documentation

The original documentation supplied with the respective storage system is the documentation relevant for setup and operation of the storage system. This instruction manual contains information on commissioning and operation of the system as well as technical specifications.

1.3 Data, figures and modifications

All data, text and figures were prepared to the best of our knowledge. They do not represent any assurance for the properties themselves. Despite taking utmost care, no liability can be assumed for accuracy, completeness and actuality of the information. Subject to changes.

1.4 Trademarks

It is noted that any software and/or hardware trademarks and any company brand names mentioned in this documentation are all subject to the general trademark protection rights.

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2 Requirements

2.1 Access to the EMS StoraXe® Machine Interface

You can operate a StoraXe[®] storage system via the "EMS StoraXe[®] Machine Interface" web interface in the following ways:

- Directly (touch-screen on the StoraXe[®] storage system)
- Indirectly (web browser)

Indirect access is possible via all devices that have a web browser, e.g.:

- Computer
- Smartphone
- Tablet

(i

2.2 Supported web browsers

The web interface is compatible with all commonly used web browsers.

Old or future versions of web browsers can lead to minor display or performance problems.



3 Login

3.1 User overview

The EMS StoraXe $^{\ensuremath{\mathbb{S}}}$ interface has a simple user management system with the following user authorisations:

- Guest (read only for restricted parameters)
- StoraXe (read/write for operation-relevant parameters)
- Service (read/write for operation-relevant parameters and service functions; reserved for service personnel)

3.2 Dial-in via web browser

Entering the IP address in the web browser opens the web interface: The IP address must be in the same network as the storage system.

- Open the browser.
- Check which IP address has been assigned to the storage system. The "detection tool" from ADS-TEC lists the IP addresses of all ADS-TEC systems. Link to download centre with detection tool: <u>Industrial IT - Software - ads-tec (ads-tec-iit.com)</u>
- Enter the IP address in the browser line.



The web interface opens.

Stor	aXe	R
Username		
Logi	n	
Continue with	hout login	
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Figure 1 – Access to the web interface via the IP address of a StoraXe[®] system

• Dial in:

Username	Password
guest	No password
storaxe	storaxe

4 Operation

4.1 General page layout

After you have logged in as the user **storaxe** or, alternatively, as **guest** by selecting "Continue without login",

you are forwarded to the homepage. Depending on the system, the page will have the following appearance:



Figure 2 – Basic page layout taking the homepage as an example

After user login, the overall view can essentially be divided into three areas:

- Button for the left menu ribbon (green)
- Right menu ribbon with icons (orange)
- Main area of the web interface (red) in which the respective page is loaded

Clicking the button for the left menu ribbon (marked green in Figure 2) opens the web interface main menu on the left side. Clicking "x" or clicking outside this menu hides the main menu again.



Figure 3 – Main menu for Service users



The main menu consists of two types of menu item: direct and indirect menu items.

Clicking indirect menu items (= category) opens or closes a drop-down menu containing all submenu items that belong to this category.

Clicking a direct menu item opens a new page in the main area of the web interface. Each submenu item of a category is automatically a direct menu item.

Depending on the system setup, the menu ribbon on the right consists of up to four icons:

- 1. Tool icon: By clicking the icon, users of the Service or Admin user groups can navigate directly to the manual control options.
- 2. Bell icon: Clicking the icon displays an overlay window in which users of the StoraXe, Service and Admin user groups can view the status of all rules used for activating potential-free signals
- 3. Warning icon: By clicking the icon, users of the Service or Admin user group can navigate directly to the active error memory.
- 4. Profile image icon: Clicking this icon opens the user menu.



Figure 4 – Right menu ribbon (left: manual mode active; right: manual mode not active)

If signal rules are activated, and at least one of the active rules is incorrect, the figure indicating the number of active rules is highlighted in red



Figure 5 - Incorrect signal rules active

In the user menu (Figure 6), you can log out, open your profile page to change your password, change the display language or set the refresh interval.



Figure 6 – User menu

4.2 Typical operator menus

4.2.1 Overview menu

Representation of the general overview of a battery storage system



Figure 7 – Typical representation of a storage system

4.2.2 Battery storage system menu

The "Overview" tab shows the specific battery storage system

		Stora	a X e®			Ж	۞	2
Battery Energy Stor	age System							
	Overview							
	Grid	Battery Ener	rgy Storage System	Events: 0				
	Inverter Active power React. power Active battery racks Temp.	Batt -6 kW Tem 0 kVar SoC 2 / 2 46.3°C / 51.3°C	t ery/-les np. 23°C / 25°C C 61 %	Ċ	G KW			
Grid	er Unit 1	Events: 0						
Inverter React. power 0 kVar Temp. 46.3°C / 51.3°C	Battery/-ies SRS 2 SoC 61 % Temp. 23°C / 25°C		↓ ■					

Figure 8 – Specific battery energy storage system



4.2.3 Energy management menu

510	ora)	<e*< th=""><th></th><th></th></e*<>		
lanage Apps				
Selfcare until 10 %		Peak Shaving until 75 %	Selfconsumption un	til 94 %
10%			75%	94%
Backup power supply	Peak S	Shaving	Selfconsumption	-
When this function is enabled, you can select the minimum So0	C and ma	aximum SoC for peak load capping	at the slider. If the SoC valu	ie falls
below the minimum SoC value or the SoC value rises above th	e maxim	um SoC value, no peak load cappin	g will be performed	
Peak Shaving		active		
		in case of a consumption peak.		en inresnoia
Maximum grid consumption power		Recharge threshold		
50000	W	40000		W
Power to which a load peak is capped. Consequently, this value is never passe	ed.	Grid reference power below which the sto to the upper SoC value.	orage system will also recharge fr	om the grid
id Relief		inactive		
aximum grid feed-in power		case of a production peak. Discharge threshold		
aximum grid feed-in power	w	case of a production peak. Discharge threshold		w
aximum grid feed-in power wer to which a feed-in is capped. Consequently, this value is never passed.	W	case of a production peak. Discharge threshold 0 Grid feed-in power below which the ste	prage system is discharged to th	e grid to the
aximum grid feed-in power wer to which a feed-in is capped. Consequently, this value is never passed. esting SoC	w	case of a production peak. Discharge threshold O Grid feed-in power below which the ste upper SoC value	orage system is discharged to th	e grid to the
aximum grid feed-in power wer to which a feed-in is capped. Consequently, this value is never passed. esting SoC	W	case of a production peak. Discharge threshold 0 Grid feed-in power below which the ste upper SoC value Resting SoC hysteresis	prage system is discharged to th	e grid to the
aximum grid feed-in power wer to which a feed-in is capped. Consequently, this value is never passed. esting SoC 100 ove the resting area, the storage unit is discharged into the grid in order to t	W % pe able	case of a production peak. Discharge threshold O Grid feed-in power below which the ste upper SoC value Resting SoC hysteresis 0	orage system is discharged to th	e grid to the
aximum grid feed-in power wer to which a feed-in is capped. Consequently, this value is never passed. asting SoC 100 ove the resting area, the storage unit is discharged into the grid in order to t absorb as much energy as possible in the event of a feed-in peak. Below th storage unit is charged from the grid in order to be able to release as much	W % e able e range, n energy	case of a production peak. Discharge threshold G Grid feed-in power below which the strupper SoC value Resting SoC hysteresis Hysteresis around the resting SoC. The hysteresis distributed around the resting the structure of t	orage system is discharged to th e resting range corresponds to t g SoC.	e grid to the

Figure 9 – Representation of energy management; peak-load capping

Menu items:

Backup power supply: The backup power supply is only displayed if it is supported by the system.

Peak-shaving: The capacity intended for this application can be adjusted using slide controls.

Descriptions of backup power supply, peak-shaving and self consumption are shown in the respective menu items.



4.2.4 Charts menu

The Charts menu is used for representation and monitoring of the system.



Figure 10 – Chart menu battery control

2 Battery control menu item

The Battery control menu displays the battery status.P_BattBattery statusSoCState of Charge

3 Period for the desired representation can be selected

adstec

			Stor	ra X e®			
Home	/ Charts						
CI He	harts ere you can create r				data sets in each tab.		
	Battery control	Grid control	Self consumption control	System control	Chart Generator		2
	SActivating fulls	creen view				Configure	
				L	ast Hour Today Last 3	Days Last 7 Days Last Month	3
				System control			
					RESET		

Figure 11 – Chart menu system control

2 System control menu item

The System control menu shows the general overview of the system.

- P_grid Power at the grid connection point
- P_Batt Battery status
- P_Res Power of all loads
- SoC State of Charge
- 3 Period for the desired representation can be selected

5 Options energy management

Information on the menu item "Energy management" (excerpt from the operating instructions):

With the energy management display in the browser, you can keep an eye on all operating parameters of the storage system from your PC, notebook, smartphone or tablet. The display provides information on the usage behaviour of the storage system and presents it in graphical form. All settings for the energy management system of the battery storage system can be carried out conveniently via this display.

5.1.1 Optimisation of personal consumption

Excess energy from power generators that cannot be used is stored in the battery storage system. This stored energy can then be discharged to the loads at a later time, e.g., at night or during inclement weather. As a result, power does not need to be supplied from the public grid or the amount of power that is supplied is significantly reduced.

5.1.2 Peak-load capping

Peak-load capping is targeted explicitly at end customers who wish to operate the battery storage system in situations where the electricity rates have a connection and service price. Here, the battery storage system is used to cap peaks in the energy drawn from the public grid.

In this case, the storage system is used so as to keep the effective power drawn from the public grid below the average value within the 15-minute billing interval.

If the system detects that the requirement cannot be met, the "PeakLoadMgr" signal is set.

Configuration

Peak-load capping: Maximum power drawn from the public grid that should not exceed the 15-minute average.

Peak load power: Definition of the maximum load power.

5.1.3 Selfcare

This application prevents a deep discharge of the storage system by continuously monitoring the battery charge level. If the minimum charge level is reached, further discharging is initially prevented. If the charge level drops further, the storage system automatically recharges until the minimum battery charge level is again exceeded.

This takes place automatically in the background and is not visible to or configurable by the customer.

Configuration

There are no parameters than need to be set.



6 Appendix

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6.2 Revision history

Date	Revision	Change	Creation	Release
02.12.2021	V1.0	Initial document and takeover of software department	Ruoss	
06.06.2022	V1.1	Adaptation of text and menu items to GSS and SRS storage systems for customers. Without service functions.	Ruoss	Metzger
13.06.2022	V1.2	Supplement Chap. 5 Customer applications	Ruoss	