

Operating instructions



Hager energy storage system
XEM800

Hager battery module
XEM100

Safety instructions

Electrical equipment may only be installed and assembled by a qualified electrician in accordance with the relevant installation standards, regulations, directives and safety and accident prevention directives of the country.

The device must be opened by a qualified electrician only!

Do not stay within a distance of less than 30 cm from the inverter for long periods due to potential health risks caused by radiation.

Failure to comply with these installation instructions may result in damage to the device, fire or other hazards.

Do not wear metal body jewellery during the installation.

Do not technically modify the energy storage system and follow the installation sequence at all times.

When using the energy storage system in a manner not specified by Hager, the protection provided by the system may be reduced.

Only Hager may carry out work to the battery controller, battery module or inverter!

The whole energy storage system has been designed for access by trained and qualified staff only, not for end users.

If the device is used to establish a connection to the Internet then corresponding safety measures must be implemented to protect the network against unauthorised access.

These instructions are an integral component of the product and must be retained by the end user.












 E3DC GmbH Karlstraße 5 D-49074 Osnabrück phone +49 6842 945 9800 www.hager.de beratung.hems@hager.de	Type	XEM800	
	Serial no.	XEM-311819000050	
	AC inverter type	E12	
	Max. DC power	13000W	
	Max. DC input voltage	1000V	
	Min. MPP voltage	250V	
	Max. MPP voltage	850V	
	Max. input current	2x 20A	
	Nominal power (230V, 50Hz)	10000W	
	Nominal frequency	50Hz	
	Nominal voltage	230V	
	Max. output current	20A	
	Feedin phases	3	
	Phases	3 (400V / 63A)	
	Ambient temperature	+5°C ... +35°C	
Enclosure	IP 30		
Safety class	1		
Use only batteries approved by E3/DC!	       		
Made in Germany	 Three sources of voltage present - PV-Generator - AC-Grid - Battery  Isolate all sources before maintenance!		

Bild 1: Type label









Symbol	Severity	Explanation
	CE symbol	The device meets the requirements of the applicable EU regulations and standards.
	Warning, hot surfaces	-
	Warning, safety hazard	-
	Read the documentation	-
	Waste Electrical and Electronic Equipment (WEEE)	Solar inverters must not be disposed of as household waste but returned to a specialist retailer for recycling.
	Warning, always take note of the discharge time.	Risk to life from high electric voltages in the inverter! Even once the device has been disconnected from the mains, it may continue to carry voltage. Please always wait 30 minutes until the capacitors have discharged!
 Three sources of voltage present - PV-Generator - AC-Grid - Battery	Caution! The device has three main supplies: - Photovoltaic generator - AC network - Battery:	Switching off just one of the main supplies may not be enough to complete stop the voltage in the entire system.
 Isolate all sources before maintenance!	Disconnect the device from all power sources before opening it!	- -

Tabelle 1: Type label symbols

Operation

Switch-on



Caution!

This step must be performed by certified electrical companies only!

- Switch on the circuit breaker and Residual current circuit-breaker of the energy storage system mains supply leads in the master cabinet.
 - Switch on the circuit breaker for the battery controller in the energy storage system.
 - Switch on the photovoltaic system on the photovoltaic rotary switch in the energy storage system
- i** The configuration and commissioning in connection with the Hager *flow* system is described in the instructions of the energy management controller XEM461.

Switch off



Caution!

The battery module may be damaged due to deep discharge!

The energy storage system may only be switched off temporarily for maintenance purposes.

- Switch off circuit breaker in the meter cabinet.
- Switch off the photovoltaic system with the photovoltaic rotary switch.
- Switch off the circuit breaker for the battery controller in the energy storage system.
- Switch off the battery module at the on/off switch
The LED display on the battery module turns off.
- Now wait at least 5 minutes before opening the energy storage system.
- Before working on electrical components of the energy storage system, wait 30 minutes until the capacitors have discharged.

LED status display

The LED status display (1) is switched off during normal operations. Press the operation button (2) at the bottom of the LED status display to turn it on and display the current status of the energy storage system for approximately 1 minute (Tabelle 2).

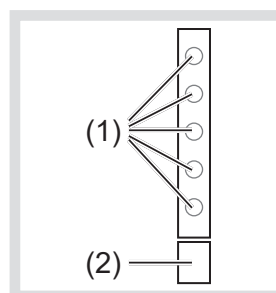
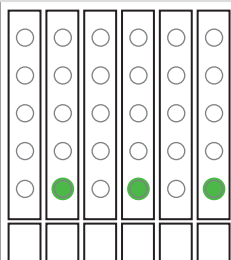
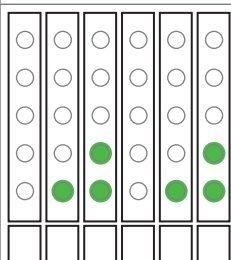
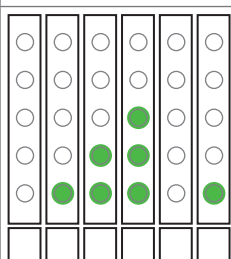
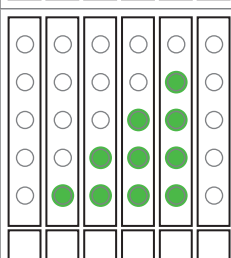
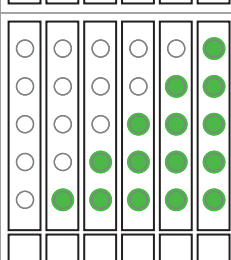
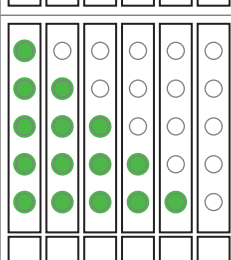


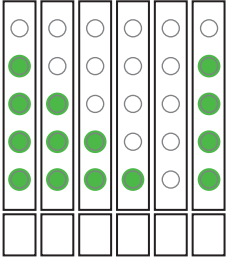
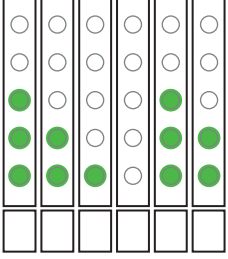
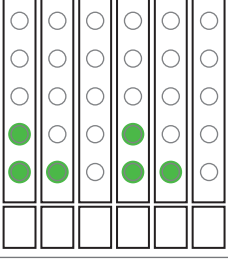
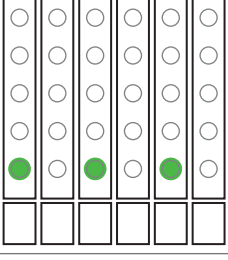
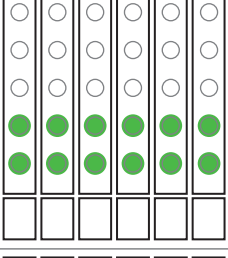
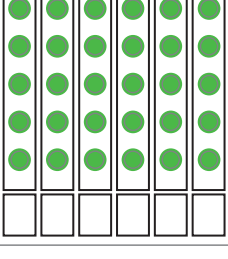
Bild 2: LED status display and operation button

(1) LED status display

(2) Operation button

If the LED status display moves up, the energy storage system is charging. The top LED of the LED status display indicates the charging level (20%, 40%, 60%, 80% or 100%). If the LED status display moves down, the energy storage system is discharging. The top LED of the LED status display indicates the current charge (20%, 40%, 60%, 80% or 100%).

LED status display		Charging / discharging status
	Green light increasing to 20%	System charges to 20%
	Green light increasing to 40%	System charges to 40%
	Green light increasing to 60%	System charges to 60%
	Green light increasing to 80%	System charges to 80%
	Green light increasing to 100%	System charges to 100%
	Green light decreasing from 100%	System discharges from 100%

	Green light decreasing from 80%	System discharges from 80%
	Green light decreasing from 60%	System discharges from 60%
	Green light decreasing from 40%	System discharges from 40%
	Green light decreasing from 20%	System discharges from 20%
	Green light constant display (e.g. 40%)	No activity, charge approx. 40%
	Green light constant display (e.g. 100%)	Energy storage is fully charged

	Short, repeated flashing of all LEDs when pressing the operation button (2), then no display	System is discharged
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Tabelle 2: LED status display operating status

LED error messages

If the centre LED of the LED status display lights up or flashes red or yellow, an error has occurred. The error codes with the corresponding recommendations are listed in the following document Tabelle 3.

Error code		Error type	Recommendations
	Red light permanently on	Slight system error	Restart the system
	Red light flashes permanently	Severe system error	Contact certified electrical company
	Yellow light permanently on	Communication error	Check internet connection and restart the system
	Yellow light flashes permanently	Communication error and system error	Contact certified electrical company

Tabelle 3: LED status display error messages

Appendix

Technical data

Input

Max. recommended DC power	13000 W
Min. MMP voltage	250 V
Max. MMP voltage	850 V
Max. DC input voltage	1000 V
Max. DC power per MPP tracker	20 A
Independent MPP trackers	2
Photovoltaic connection	2 x 2 MC4 connectors

Output

Nominal AC power (230 V, 50 Hz)	10000 W (depending on photovoltaic size)
Max. apparent output power	13800 VA
Nominal AC voltage L/N/PE 230 V	3 x 230 V
Rated AC frequency	50 Hz
Max. output current (per phase)	20 A
Feed-in phases / connection phases	3 / 3
Transformerless	technology
Cos φ (Phi)	-0.9 ... +0.9

General data

Max. efficiency of the entire system	> 88 %
Effectiveness of the photovoltaic inverter EU	> 95 %
AC short circuit proof / earth fault monitoring	yes / yes
Operating temperature range	5 °C ... 35 °C
Storage / transport temperature	5 °C ... 35 °C
Relative humidity	85% (uncondensed)
Maximum operating height above sea level	2000 m
Noise	< 35 dB
Protection class / cooling	IP20 / fan, depending on performance
Data interface	Ethernet / CAN
Dimensions (W x H x D)	1052 x 1350 x 296 mm
Height with optional base	1550 mm
Total system weight excluding battery modules	152 kg
Weight of energy storage system with battery modules	196 kg with one module / 240 kg with two modules
LED	status display
Energy management	External through the energy management controller

Battery system

	1 battery module	2 battery modules
battery transducer permanent output (kW)	5.8 kWh	11.6 kWh
Battery technology		3.0 kW
Weight per battery module		Lithium ion
Weight of the battery modules	44 kg	44 kg
Effectiveness of batteries		88 kg
Temperature control		> 95 %
Useable battery capacity	yes	
Depth of discharge 100 %	5.8 kWh	11.6 kWh
Retrofitting to (within the first year)		100 %
	11.6 kWh	

System

External interfaces	see energy management controller
SG Ready interface for heat pump connection	optional
Building automation	see energy management controller

Security:

Degree of protection	IP 30
Protection class	1
Degree of contamination	2
Recommended external protection and switch-off devices (not included in scope of delivery)	
Residual current circuit breaker (CFB640E)	4-pin, 10 kA, 40 A, 300 mA, type B
Circuit breaker (MBN332)	3-pin, 6 kA, 32 A, B characteristic

Certificates and standards

security

DIN 0126-1-1 and VDE-AR-N 4105
 Directive 2014/35/EU Electrical equipment
 Low voltage Directive 2014/30/EU Electromagnetic compatibility
 Directive 2011/65/EG EU-RoHS
 EN 61000-6-3:2011
 EN 61000-6-2:2006
 EN61000-3-2:2006 + A1:2009 + A2:2009
 EN61000-3-3:2008
 EN 62109-1:2010
 EN 62109-2:2011
 EN 50581:2012
 Lithium ion batteries in accordance with UN 38.3 transport test (UN Manual of Tests and Criteria, Part III, subsection 38.3)

Conformity

CE conformity

Accessories

Battery module	XEM100
Base for upright assembly	XEM200
SG Ready interface for heat pump connection	XEM250

Maintenance and cleaning

The energy storage system is a maintenance-free product. No regular preventive maintenance is therefore required and none of the parts have to be replaced by the operator.

A qualified electrician certified for the Hager energy storage system can nevertheless check that the visible bolted joints are securely fixed (after removing the touch guard) during an e-check.

The outside of the energy storage system can be wiped with a dry or slightly damp cloth. It is not necessary to clean the inside. Check the electrical switching and safety equipment in the house distribution board for visual defects.

Battery recycling

The battery modules are recycled by the system engineer and Hager. Please therefore contact the system engineer who will arrange for Hager to recycle the battery modules.

Disposal



Disposal of electrical and electronic devices as well as batteries in the
European Union.

The symbol of a crossed-out rubbish bin on the product and/or packaging indicates that the device must not be disposed off in the ordinary household rubbish. Your local municipality, waste disposal point or retailer where the device was purchased can give you information on recycling. By ensuring that the product is properly disposed of, you make an important contribution to the environmentally friendly disposal of the device and to preventing negative effects on the environment and health of other people.

Warranty

We reserve the right to realise technical and formal changes to the product in the interest of technical progress.

Our products are under warranty within the scope of the statutory regulations.

If you have a warranty claim, please contact the point of sale.



Hager Vertriebsgesellschaft mbH & Co.KG
Zum Gunterstal
66440 Blieskastel, Germany

[hager.com](https://www.hager.com)