

USER MANUAL



Warning notices: Before using this product, please read this manual carefully and keep it for future reference. The design and specifications are subject to change without prior notice for product improvement. Consult with your dealer or manufacturer for details.

The diagram above is just for reference. Please take the appearance of the actual product as the standard.

1. I am an Installer

1.1 login and Logout

Procedure

- You have obtained the username or email address and password for logging in to the system.
- Use a web browser, open the URL https://energy.mhelios.com/.
- Enter the username or email address and password, and click 【Sign in】.



1.2 Home

If two or more plants are bounded to the installer, the list view is displayed by default after the installer logs in to the system.

MHELIOS	Home	Monitorin	g Plant	S						💮 English 🗸	😩 adm123
Plant name	Status	v)	Installation date	2023-02-01 ~	2023-02-07 🗸	Search	Reset				
Status		Plant name			PV capacity (kWp)		Active Alams 🔅	Total Yield(kWh) 😄		Installation Time	•
•		Energy Management	1		10		o	7308.21		2022/03/02 12:00:12	1
•		Energy Management	2		10		0	7308.21		2022/03/02 12:00:12	10
		Energy Management	3		10		0	7308.21		2022/03/02 12:00:12	20
•		Energy Management	4		10		0	7308.21		2022/03/02 12:00:12	2
								,	lotal records: 4	0 1 2 :	2 4 0

Status	Color	Description
Normal		The device is running properly.
Standby		The device is on standby or on command.
Off-Grid		The system does not depend on the power grid.
Warning		The device is faulty.
Off-line		The communication is interrupted.

1.3 Monitoring

1.3.1 Overview

The Overview interface can display the current equipment operating status, PV generation/consumption date, daily power generation statistics and other information.

1) status of the energy system

On the Overview screen, you can view the status of current energy system devices: Normal, Standby, Off-line, Warning or Off-Grid.

- When the device is running normally, the status display is Normal in green font.
- When the device is in standby, off-grid or Off-line, the corresponding status will be indicated.
- When the device encounters a malfunction, a warning prompt will appear. Click on the status to enter the fault pop-up window, the fault pop-up window will display the detailed error message of energy device malfunction.
- PV power is used for home usage. If there is excess solar, the batteries will be charged, and discharged to power your home after sunset. When the device is in self-generating and self-consuming, the status is displayed as Off-Grid.



Failure of the energy system

When the status indicates a fault, the web will send out a fault message and click on the button to bring up a pop-up window displaying the specific fault message. The pop-up window shows the time the fault was reported, device type, name, SN, fault code, description, probable reason and suggestion.



2) Energy flow diagram

The energy flow diagram is based on real-time data from the current device, showing the household's photovoltaic power generation, load power, energy storage power, energy storage SOC, and grid power consumption.



Device

On the Overview screen of the webpage, the energy flow graph shows how much energy is charged and discharged between devices and where the energy flows. The devices mainly include Energy Manager, Grid, Solar, Battery and Home.

Energy flow directions

In the energy flow diagram, the dots move dynamically from one device to another in a circular fashion when there is energy flow between devices.

The two ends of each flow line show the real-time power between their devices:

- Solar panels can only generate electricity, showing the power generated by the PV.
- Energy storage can be charged through the grid or photovoltaics, or actively discharged to the grid or load, so the energy flow diagram of the storage is bidirectional. The energy flow diagram will display the current SOC value of the battery in real time.
- When the photovoltaic and energy storage systems cannot supply enough electricity for household consumption, the system will automatically draw electricity from the grid, and the flow of energy in the diagram will move from the grid to the system. When the photovoltaic system generates excess electricity, it will feedback to the grid and receive revenue from selling electricity.

Tips:

- During installation, the after-sales installation personnel confirmed that the system does not have energy storage, so the battery module will not be displayed in the energy flow diagram.
- If the power is 0 or if there is no data, the dots in the direction of energy flow do not flow.

3) Daily informative summary and Daily general information

On the Overview screen of Energy Manager , it shows daily informative summary and daily.

Generated Today: Reflects the total amount of electricity generated by the photovoltaic system up until the current hour of today.

Consumed Today: Reflects the total amount of electricity consumed by the household system up until the current hour of today.

Revenue Today: Reflects the total revenue generated by the system up until the current hour of today.

Self-power Today: Reflects the self-sufficiency rate of electricity generation up until the current hour of today.

CO2 avoided: Reflects the total amount of carbon dioxide emissions saved since the installation of the system. If there was electricity generation before the installation of the system, it is not included in the calculation.

Equivalent trees planted: Reflects the equivalent number of trees planted since the installation of the system. If there was electricity generation before the installation of the system, it is not included in the calculation.



Tips:

- The above 6 parameters are refreshed every 1hour in real time.
- If no data is available for an indicator for that day, the indicator is displayed as O. Meanwhile, if the tariff is not set, there is a "--" at Revenue.

4) Energy curve

Daily power generation/consumption graph: It displays the real-time electric power of PV Power, Grid Power, Home Usage, Battery Power, Heat Pump Power and EV Charger Power.

The vertical axis of the chart is bounded by the highest point of the day and shows the real-time electric power of PV Power, PV Power, PV Power, Home Usage and Battery Power.



1.3.2 Analysis

Procedure

- On the website homepage, click on the Energy System page.
 In the left page selection, click the "analysis" button to enter the analysis screen.
- Whenever you enter the 'Analysis' page, the default switch is' Day', which will open the data panel for that day.

Energy view

Display the current power generation and consumption for the day (these two data should be consistent with the two data displayed on the homepage).

Generation

Calculate the total generated power (Generation) up to the current time today, and categorize the values and percentages by direction of flow: To Home, To Grid, and To Battery.

Consumption

Summarize and report the total power consumption (Consumption) up to the current time today. Provide numerical values and percentages for three categories: From grid, From solar, and From battery.

MHELIØS	Home Monitoring Plants	🕀 English 🗸 😩 adm123
0verview	Energy Manager9	
🕑 Analysis	Energy Revenue Day Month Year Lifetime	C 07/15/2023)
History	To home: 2.66 kWh (17.75%)	From grid: 4,66 kWh (62.97%)
 Alarms Settings 	Generation: 14.99 kWh To grid: 12.04 kWh (80 32%)	Consumption: 7.40 kWh
Details	To battery: 0.29 kWh (1.93%)	From battery: 0.08 kWh (1.0%)
	Energy Profile	ی Download
	Power(kW)	SOC(%)
	129	20
		15
	0000 0050 0140 0210 0320 0410 0500 0550 0640 0730 0820 0910 1000 1050 1140	12:30 13:20 14:10 15:00 15:50 16:40 17:30 18:20 19:10 20:00 20:50 21:40 22:30 23:20

Note: On the default Analysis screen, click on the time interval you want to statistics energy, such as day, month, year and lifetime.

Switching views

When switching to monthly, yearly, or lifetime view, a row of views will appear for selection: "Generation", "Consumption", "PV", "ESS", "Load", "All", with "All" being the default option.

• Generation/Consumption graph: Summaries of energy production/consumption for the different time periods. Generation and Consumption charts can only be selected as one or the another.

- 1) When the Generation chart is selected, the chart displays the corresponding self-consumption to home, internet access to grid and battery charge to battery for the different time dimensions.
- 2) When the Consumption graph is selected, the graph displays 3 data based on different time dimensions: from grid, from solar and from battery.

MHELIOS	Home Monitoring Plants	💮 English 🛩 😩 adm123
C Analysis	Energy Manager9 Energy Revenue Day Month Year Lifetime	Ø 07/2023 O
 History Alarms Settings Details 	Generation: To home: 123,12 kWh (13,74%) Con 896,23 To grid: 665,44 kWh (74,25%) 27 To battery: 107,67 kWh (12,01%) KKK	From grid: 79.97 kWh (29.23%) 73.57 KWh From solar: 123.12 kWh (45.00%) From battery: 70.48 kWh (25.76%)
	Generation Corecurption PV ESS Load All	Download

Revenue view

Yield statistics: Displays Revenue of the current moment of the day (this data is consistent with the 1 data on the home page).

Revenue graph: Summary of the revenue in local currency for the different time periods. The revenue consists of two parts, including saving the cost of buying electricity from the grid and selling electricity to the grid.

MHELIOS	Home Monitoring Plants	🕀 English 👻 😩 adm123
C Analysis	Energy Manager9 Energy Revenue Month Year Lifetime O 06/2023 ()	O 07/2023 O
 History Alarms Settings Details 	Total revenue: Save bill: 0 s (0.00%) 381.88 \$ Feed-in: 381.88 s (100.00%)	
	5 40 5 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7	Download

Tips:

- If no tariff has been set for the entire statistical interval, there will be no REVENUE chart regardless of which tab you switch to.
- Legend and data for From Solar, To Solar, From Battery, To Battery are not available if there are no photovoltaic panels or energy storage batteries in the device. However, when there is a device but the value is 0, the vertical coordinate is displayed as 0 and the horizontal coordinate is represented by a dot.

1.3.3 History

Note:

- **Device type:** Energy Manager/Storage/Battery. Depending on the device type, different signal points can be selected.
- Signal point name: Refers to the selectable indicator item, displayed in a line chart. Up to 5 indicators can be queried simultaneously. Clicking on the query box will bring up a pop-up window displaying key attribute indicators. Up to 2 units of indicators can be selected. If only one unit is selected, up to 5 indicators can be queried simultaneously. The corresponding historical data is displayed in a curve chart, with the horizontal axis showing time and the vertical axis showing the value and unit of the selected indicator.

MHELIØS	Home Monitoring Plants	🕀 English 🛩 😩 adm12:
Cverview	Energy Manager9	
Analysis	Device Type Energy Manager V Device Name Energy Manager_0 V Date 2023-07-15 Signal Point Load power (KVI) × + 1	Search
Alarms	[2023-07-15]Energy Manager_0	
Settings	-O- Load power (MM) -O- P/T voltage (V)	
Details	1 kw	700 V
	0.8 km	600 V 500 V
		400 V 300 V
	02 kW	200 V 100 V
	9 ປະທ ອຽກກາ ແລ້ວ ແລະ ລາມລາ ແລະ	0909 0931 0953 1013 0V

1.3.4 Alarms

Choose Monitoring > Alarms, enter the Alarms settings menu to view the device's Active Alarms information and Historical Alarms information.

Status	Color	Description
Critical		Failure to handle it will develop into a safety related fault.
Major		Faults that cannot be self recovered and cannot be repaired by ordinary users.
Minor		Failures that can be self recovered or recovered by ordinary users.

Status	Color	Description
Warning		Does not affect the main functions of the product.

Active Alarms

Enter the Active Alarms setting and select the device to obtain real-time alarm information for the device.

Overview	Energy Manager9,						
Analysis	Active Alarms Historical Ala	rms					
History	Device Type All - Alarm ID A	larm ID Severity		Search Reset)		
Alarms	🔵 Critical 🔴 Major (Minor 🙁 Warnin	a	ALI				
Settings	Alarm severity Plant name	Device type Devi	Major	wice SN Alarm ID	Alarm name	Occurrence Time \$	Description
Details	Energy Management 1	bettery 21031230	🗌 🧿 Warning	2030200100 2002	high string input vottage	2023/01/23 14:00	The PV array is not prop
De uno	Energy Management 1	bettery 2103123	DHHIOM300 SN2	022030200100 2002	high string input vottage	2023/01/23 14:00	The PV array is not prop
	🛄 📔 🤒 📔 Energy Management 1	bettery 2103123	DHH10M300 SNG	022030200100 2002	high string input vottage	2023/01/23 14:00	The PV array is not prop
	🔄 📔 🔴 🕴 Energy Management 1	bettery 2103123	DHH10M300 SNG	2022030200100 2002	high string input vottage	2023/01/23 14:00	The PV array is not prop
						Total records:	4 () 1 (2) 3 4 (

• Historical Alarms

Enter the Historical Alarms settings and select the device to obtain the historical alarm information for that device.

1.3.5 Settings

Device Management

Choose Monitoring > Settings > Device Management, device list information display: device status, device name, type, software version number, SN NO, model.

Energy Manager, Energy Storage name blue font, click to modify parameters.

Device Manager	nent		Grid Settings		Price Settings	Mode Settings
Device status	Device name		Device types	Software version number	SN No	Model
□ # . ●	Energy Manager_0	Ľ	Energy Manager	v.3.0.4	Energy Manager_0	
•	Meter_1	C	Meter	v.0.0.1	Meter_1	
•	Dongle_1	Ľ	Dongle	v.0.0.1	Dongle_1	
□ ■●	Storage_1	Ľ	Storage	v.2.1.2	Storage_1	
•	Battery_1	Ľ	Battery	v.0.0.1	Battery_1	
•	Battery_2	Ľ	Battery	v.0.0.1	Battery_2	
	The list devi	ice is inco	onsistent with the actua	17 Please refresh the reco	nnection, Or Contact After-sales Eng	gineers

Parameters settings

In the parameter setting module, the maximum charging power, maximum discharge power, end of charging SOC, and end of discharging SOC of energy storage can be set;

MHELIOS	Home Monitoring Plants	💮 English \vee 🛛 🚨 adm123
Overview	Energy Manager Parameter Settings (Storage_1)	_
O Analysis	Dev max charge power (KW):	Mode Settings
History	Parameters setting 5.0 Parameter value range (0-5.0)	
Alarms Settings	P Forced charge/discharge max discharge power (kW):	todel
E Details	5.0 Parameter value range (0-5.0	
	end of charge soc (%):	
	95 Parameter value range (90-10	10]
	end of discharge soc (%):	
	15 Parameter value range [0-15]	
	Set Cancel	

Forced charge/discharge

When the inverter connects to a battery, set battery parameters.

Forced charge/discharge:

- The main purpose of forced charge and discharge is to execute planned energy storage energy dispatch. Therefore, the control strategy aims to quantitatively charge and discharge as much as possible according to the forced target SoC within the specified time. After reaching the target SoC or when the specified time ends, the original mode is restored.
- There are three modes for forced charge and discharge: forced charge mode, forced discharge mode, and stop.
- In forced charge mode, the charging power and charging cut-off SOC are set. The system will then forcibly charge the energy storage at the set power.
- In forced discharge mode, the discharging power and discharging cut-off SOC are set. The energy storage will then forcibly discharge to the system at the set power.
- In stop mode, the battery will stop forced charging and discharging and return to its original working mode.

MHELIØS	Home	Monitoring	Plants			🕀 English 👻 💄 adm12
0verview	Energy Manage	Parameter Settings (St	orage_1)			
O Analysis	De	Descention		charge flag:		Mode Settings
History		Forced charge/discha		disable		
Alarms	-	Forceu chargeroischa	iye	set charge power (kW):		todel
Q Settings	- 0			0	Parameter value range [0-5.0]	
Details				set discharge power (kW):		
	0 6			0	Parameter value range [0-5.0]	
				target soc (%):		
				50	Parameter value range [0-100]	
				Reminder: The execution results of charge influenced by the backup mode, on/off-gri soc/end of discharge soc and so on.	flag(charge/discharge/disable) are d status, control mode, end of charge	
					Set Cancel	

Grid Setting

1) Feed-in control

The Energy Manager's ability to feed excess electricity back to the grid is determined by the "disable" or "enable" setting.

When "disable" is selected, there is no limit to the power fed back to the grid, but the maximum value is less than or equal to the inverter's rated power.

When "enable" is selected, the maximum grid feeding power range can be set from 0 to the inverter's rated power.

2) Charge From Grid control:

The decision determines whether the battery can charge from grid.

When "disable" is selected, there is no limit to the maximum grid charging power (Charge-Limit), but the maximum value is less than or equal to the rated power of the energy storage.

When "enable" is selected, the maximum grid charging power (Charge-Limit) can be set between 0 and the rated power of the energy storage.

nalysis	Device Management	Grid Settings	Price Settings	Mode Settings
istory				
	Feed-in control	limit control	maximum feed-in power	
arms	enable	total	× 2.0	kW
ettings	charge from grid control	maximum charge power from	n grid	
etails	enable	~ 2.0	kw	
			Set	Refresh

Price settings

- On the website homepage, click on the Energy manager.
- Once the device is selected, enter the Overview screen and click on the Setting tab choose Price Settings.
- Dropdown box to select electricity price type, single rate is selected by default.
- Enter a numerical value in the electricity price input box, and click the Set button to complete the price set.
- The default price unit is Euro, which can be rotated in USD, RMB, etc. If the buy option is \$, the sell will automatically update to \$.

MHELIØS	Home	Monitoring	Plants						⊕ English ∨	admî
Overview	Energy Manager9									
Analysis	Device #	Nanagement		Grid Setting	i		Price Settings		Mode Settings	
History										
Alarms	Rate Plan	ingle Rate		Y:						
Settings	Buy Price:			s	Ŷ	/kWh				
Details	Sell Price: 0	5		s	×	/kWh				
								Set	Cancel	

Mode setting

1) Backup Mode:

This module is only available if an energy storage battery is installed. It is disabled by default, with Reserve Energy for Grid Outage set to 0% and the value cannot be modified.

When enabled, the user can adjust the percentage of reserve energy by dragging the small circle. The range is from 20% to 90%, and the Reserve Energy for Grid Outage value updates accordingly.

When a reserve energy percentage is set, the battery's state of charge (SOC) cannot drop below that percentage in any grid-connected operating mode (controlled by the power electronics).

2) Set Control Mode:

• Mode1: Maximize Self-consumption

This mode is suitable for areas with high electricity tariff. When the PV power is sufficient, priority is given to the local load, and the excess electricity is goes to energy storage, and if there is still energy left, it is sold to the grid. When the PV power is insufficient/there is no PV power, the battery is discharged for the local load, and when the battery discharge power and photovoltaic power can not meet the load demand, the insufficient power will be purchased from the grid.

• Mode2: Maximize Feed-in

This mode is suitable for areas with high feed-in tariff. When the PV power is greater than the inverter capacity, the excess electricity will be stored by energy storage. When PV power is less than the inverter capacity, the excess electricity will be sold to the grid.

Overview	Energy Managera	···· 🔛				
Analysis	Device	Management	Grid Settings	Price Settings	Mode Settings	
History	Backup mode	0 Disable V				
Alarms	Set backup re	eserve, Energy storage syste	em provides you with energy a	security during a grid outage.		
Settings		0	E	50%		
Details						
	Set Control M	Mode				
	Maxi	imum self-consumptio	n	eese color, the betteries will be ob	aread and discharged to power	
	your	home afters unset.	me usage. If there is exc	cess solar, the batteries will be ch	larged, and discharged to power	
	Maxi	imum Feed-in	war output When the DV	nower is greater than the maximu	im output consolty of the Energy	
	Mana	ager, the batteries will b	e charged.	power is greater than the maximu	am output capacity of the Energy	
					Set Refresh	

1.3.6 Details

Choose Monitoring > Details , Enter the "details" settings, select the device, and you can obtain some key attributes of the device's PV data, battery data, and grid data.

Analysis	PV Data		Battery Data		Grid Data	
History	PV1 Voltage	580.80 V	soc	20.00 %	Grid phase A voltage	228.90 V
Alarms	PV1 Current	8.00 A	Charge and discharge power	0.00 kW	Grid phase B voltage	233.70 V
Settings	PV2 Voltage	586.80 V	Total discharge energy	342.70 kWh	Grid phase C voltage	235.90 V
Details	PV2 Current	7.90 A	Battery voltage	52.10 V	Grid phase A current	13.40 A
	PV1 Power	4.68 kW	Battery current	23.50 A	Grid phase B current	13.30 A
	PV2 Power	4.68 kW			Grid phase C current	13.30 A
	Total PV Power	9.38 kW				

1.4 Plants

The installer logs in the after-sale system, click the **[**Plants**]** to view the basic information of the PV station, installer and owner.

	Home Monitoring	Plants			🌐 English 🖌 😩 ad
ant name Energy Management 1	Search Reset	Ĵ			
Plant name	Installation Time	Address	installer-Email	Contact Phone	Owner-ID
Energy Management 1	2022/03/02 12:00:12	No. 6, Xinye 4th Road, Shunde District, Foshan City, Guangdong Province	10329348qg.com	189****5678	1032934
Energy Management 1	2022/03/02 12:00:12	No. 6, Xinye 4th Road, Shunde District, Foshan City, Guangdong Province	1032934@qq.com	189****5678	1032934
				Total records: 4	4 🕘 1 🔁 3 4

2. I am an User

2.1 login and Logout

Procedure

- You have obtained the username or email address and password for logging in to the system.
- Use a web browser, open the URL https://energy.mhelios.com/.
- Enter the username or email address and password, and click 【Sign in】.



2.2 Overview

The Overview interface can display the current equipment operating status, PV generation/consumption date, daily power generation statistics and other information.

2.2.1 Status of the energy system

On the Overview screen, you can view the status of current energy system devices: Normal, Standby, Off-line, Warning or Off-Grid

- When the device is running normally, the status display is Normal in green font.
- When the device is in standby, off-grid or Off-line, the corresponding status will be indicated.
- When the device encounters a malfunction, a warning prompt will appear. Click on the status to enter the fault pop-up window, the fault pop-up window will display the detailed error message of energy device malfunction.
- PV power is used for home usage. If there is excess solar, the batteries will be charged, and discharged to power your home after sunset. When the device is in self-generating and self-consuming, the status is displayed as Off-Grid.



Failure of the energy system

When the status indicates a fault, the web will send out a fault message and click on the button to bring up a pop-up window displaying the specific fault message. The pop-up window shows the time the fault was reported, device type, name, SN, fault code, description, probable reason and suggestion.

мн≡	LIOS							🕀 English 🗸 📲	adm123
95 Overvi	iew	Energy Manager 🗾				08/14/2023 Tuesday	€ Guang Zhou 32°C	Today 18-2PC West 17-2PC	
O Ana	Name Energy Manager,	_0 0000E4311220L0	5N 007291620390750000	Type Energy Manager	Description Restart repeatedly fails	Reason Restart repeatedly fails	Suggestion Restart repeatedly fails	Reporting Time	
			Solar	2 xw = 40 x	Home		Consumed Today 12.8 kWh CO2 avoid 2.31 T	Self-powered To 60 %	day 05 anted
		Energy Profile Power (kW) 5 4 3 2 1 0 0000		2022-08-14 Grid Power P Po power Battery Po Battery Do Battery Do	10:25 0.55 kW 0.03 kW 0.04 kW 0.03 kW 0.03 kW 0.04 gW 0.03 kW 0.04 gW 0.05 kW 0.05 kW	Powr		06/14/2022 ③	0 X 500 (%) 100 10 10 10 10

2.2.2 Energy flow diagram

The energy flow diagram is based on real-time data from the current device, showing the household's photovoltaic power generation, load power, energy storage power, energy storage SOC, and grid power consumption.



Device

On the Overview screen of the webpage, the energy flow graph shows how much energy is charged and discharged between devices and where the energy flows. The devices mainly include Energy Manager, Grid, Solar, Battery and Home.

Energy flow directions

In the energy flow diagram, the dots move dynamically from one device to another in a circular fashion when there is energy flow between devices.

The two ends of each flow line show the real-time power between their devices:

- Solar panels can only generate electricity, showing the power generated by the PV.
- Energy storage can be charged through the grid or photovoltaics, or actively discharged to the grid or load, so the energy flow diagram of the storage is bidirectional. The energy flow diagram will display the current SOC value of the battery in real time.
- When the photovoltaic and energy storage systems cannot supply enough electricity for household consumption, the system will automatically draw electricity from the grid, and the flow of energy in the diagram will move from the grid to the system. When the photovoltaic system generates excess electricity, it will feedback to the grid and receive revenue from selling electricity.

Tips:

- During installation, the after-sales installation personnel confirmed that the system does not have energy storage, so the battery module will not be displayed in the energy flow diagram.
- If the power is 0 or if there is no data, the dots in the direction of energy flow do not flow.

2.2.3 Daily informative summary and Daily general information

The energy flow diagram is based on real-time data from the current device, showing the household's photovoltaic power generation, load power, energy storage power, energy storage SOC, and grid power consumption.

On the Overview screen of Energy Manager , it shows daily informative summary and daily.

Generated Today: Reflects the total amount of electricity generated by the photovoltaic system up until the current hour of today.

Consumed Today: Reflects the total amount of electricity consumed by the household system up until the current hour of today.

Revenue Today: Reflects the total revenue generated by the system up until the current hour of today.

Self-power Today: Reflects the self-sufficiency rate of electricity generation up until the current hour of today.

CO2 avoided: Reflects the total amount of carbon dioxide emissions saved since the installation of the system. If there was electricity generation before the installation of the system, it is not included in the calculation.

Equivalent trees planted: Reflects the equivalent number of trees planted since the installation of the system. If there was electricity generation before the installation of the system, it is not included in the calculation.



Tips:

- The above 6 parameters are refreshed every 1hour in real time.
- If no data is available for an indicator for that day, the indicator is displayed as O. Meanwhile, if the tariff is not set, there is a "--" at Revenue.

2.2.4 Energy curve

Daily power generation/consumption graph: It displays the real-time electric power of PV Power, Grid Power, Home Usage, Battery Power, Heat Pump Power and EV Charger Power.

The vertical axis of the chart is bounded by the highest point of the day and shows the real-time electric power of PV Power, PV Power, PV Power, Home Usage and Battery Power.



2.3 Analysis

Procedure

- On the website homepage, click on the Energy System page.
- In the left page selection, click the "analysis" button to enter the analysis screen. Whenever you enter the 'Analysis' page, the default switch is' Day', which will open the data panel for that day.

2.3.1 Energy view

Display the current power generation and consumption for the day (these two data should be consistent with the two data displayed on the homepage).

Generation

Calculate the total generated power (Generation) up to the current time today, and categorize the values and percentages by direction of flow: To Home, To Grid, and To Battery.

Consumption

Summarize and report the total power consumption (Consumption) up to the current time today. Provide numerical values and percentages for three categories: From grid, From solar, and From battery.

MHELIØS		⊕ English ~ 😩 adm123
0 Overview	Energy Manager9	(i) 07/15/2023 (ii)
O Analysis		
C Settings	Generation: 24,13 KWh 20,34 KWh (84.29%) To battery: 0.31 KWh (120%)	From grid: 4.66 kWh (56.55%) From solar: 3.48 kWh (42.23%) From battery: 0.1 kWh (12.1%)
	Power(kW)	SOC(%)
	12	8
		20
		15
		5
	-12 -12 -12 -12 -12 -12 -140	0 12:30 13:20 14:10 15:00 15:50 16:40 17:30 18:20 19:10 20:00 20:50 21:40 22:30 23:20

Note: On the default Analysis screen, click on the time interval you want to statistics energy, such as day, month, year and lifetime.

2.3.2 Switching views

When switching to monthly, yearly, or lifetime view, a row of views will appear for selection: "Generation", "Consumption", "PV", "ESS", "Load", "All", with "All" being the default option.

Generation/Consumption graph: Summaries of energy production/consumption for the different time periods. Generation and Consumption charts can only be selected as one or the another.

When the Generation chart is selected, the chart displays the corresponding self-consumption to home, internet access to grid and battery charge to battery for the different time dimensions.

When the Consumption graph is selected, the graph displays 3 data based on different time dimensions: from grid, from solar and from battery.



2.3.3 Revenue view

Yield statistics: Displays Revenue of the current moment of the day (this data is consistent with the 1 data on the home page).

Revenue graph: Summary of the revenue in local currency for the different time periods. The revenue consists of two parts, including saving the cost of buying electricity from the grid and selling electricity to the grid.



Tips:

- If no tariff has been set for the entire statistical interval, there will be no REVENUE chart regardless of which tab you switch to.
- Legend and data for From Solar, To Solar, From Battery, To Battery are not available if there are no photovoltaic panels or energy storage batteries in the device. However, when there is a device but the value is 0, the vertical coordinate is displayed as 0 and the horizontal coordinate is represented by a dot.

2.4 Settings

2.4.1 Device Management

- On the website homepage, click on the Energy manager.
- Once the device is selected, enter the Overview screen and click on the Setting tab choose Price Settings.
- Dropdown box to select electricity price type, single rate is selected by default.
- Enter a numerical value in the electricity price input box, and click the Set button to complete the price set.
- The default price unit is Euro, which can be rotated in USD, RMB, etc. If the buy option is \$, the sell will automatically update to \$.

MHELIOS	🕀 English 🗸 🔮	adm123
0verview	Energy Manager	
Analysis	Price Settings Mode Settings	
Settings	Rate Plan Single Rate Buy Price: 0 Sell Price: 0.5 Sell Price: 0.5 Sell Price: 0.5	

2.4.2 Mode setting

1) Backup Mode:

This module is only available if an energy storage battery is installed. It is disabled by default, with Reserve Energy for Grid Outage set to 0% and the value cannot be modified.

When enabled, the user can adjust the percentage of reserve energy by dragging the small circle. The range is from 20% to 90%, and the Reserve Energy for Grid Outage value updates accordingly.

When a reserve energy percentage is set, the battery's state of charge (SOC) cannot drop below that percentage in any grid-connected operating mode (controlled by the power electronics).

2) Set Control Mode:

• Mode1: Maximize Self-consumption

This mode is suitable for areas with high electricity tariff. When the PV power is sufficient, priority is given to the local load, and the excess electricity is goes to energy storage, and if there is still energy left, it is sold to the grid. When the PV power is insufficient/there is no PV power, the battery is discharged for the local load, and when the battery discharge power and photovoltaic power can not meet the load demand, the insufficient power will be purchased from the grid.

• Mode2: Maximize Feed-in

This mode is suitable for areas with high feed-in tariff. When the PV power is greater than the inverter capacity, the excess electricity will be stored by energy storage. When PV power is less than the inverter capacity, the excess electricity will be sold to the grid.

2.4.3 Charge and discharge Schedule

After setting the charging and discharging plan, the server sends charging and discharging instructions to the power controller according to the set cycle. After executing the charging instructions, the charging will stop as long as it reaches the set "Charging cut-off SOC" or the set end time within the set time period. After executing the discharging instructions, the discharging will stop as long as it reaches the set "Discharging cut-off SOC" or the set end time within the set time within the set time period.

Tips:

- By default, it is set to "Disable" and the parameter table is not displayed.
- When changing it to "Enable", the previously set items can be expanded and modified. If there are no set items, a new row will be expanded, and the following parameters need to be set: start time, end time, charging/discharging, and cycle.

s	Price Settings	Mode Settings	
s Backup mo	de Disable v		
Set backup	reserve, Energy storage system provides you with energy se	curity during a grid outage.	
_	0	50%	
Set Contro	l Mode		
Ma	iximum self-consumption		
PV uns	power is first used for home usage. If there is exce	iss solar, the batteries will be charged, and discharged to power	your home afters
Ma Ma will	ximum Feed-in ximize PV and battery power output.When the PV p I be charged.	lower is greater than the maximum output capacity of the Energ	y Manager, the batteries
Charge and	I discharge schedule Enable V		
		Repeat	0
Start 1	Time: End Time: Charge/Discharge		

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Important instructions for environment(European Disposal Guidelines)

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This symbol indicates that this product shall not be disposed with other household wastes at the end of its service life. Used device must be returned to official collection point for recycling of electrical electronic devices. To find these collection systems please contact to your local authorities or retailer where the product was purchased. Each household performs important role in recovering and recycling of old appliance. Appropriate disposal of used appliance helps prevent potential negative consequences for the environment and human health.



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