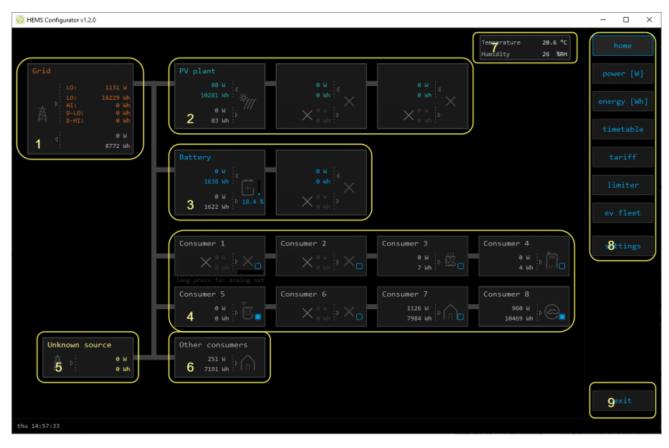
# **HEMS v1.2.2 Configurator**

## **HEMS** Configurator

## home

Basic system overview.



1. Grid							
	From grid	Tariff (LO, HI, D-LO, D-HI) and power from grid in W					
>	From grid	Imported energy by tariff in Wh					
	To grid	Power exported to grid in W					
<	To grid	Exported energy in Wh					
2. Plants							
<	Produced	Produced power in W and energy in Wh					
>	Consumed	Consumed power in W and energy in Wh					
3. Storage systems							
<	Sourced	Power in W and energy in Wh sourced from storage (battery)					
>	Stored	Power in W and energy in Wh stored (to battery)					
bargraph and % <sup>1</sup>	SOC	Battery State Of Charge					
4. Consumers	-						
>	Consumed	Consumed power in W and energy in Wh					

[]	Status	Output status for managed consumers					
bargraph <sup>2</sup>	Analog out	Analog output value					
click	Toggle	Click in frame toggles managed consumers output					
long-press <sup>2</sup>	Set analog	Long press on first consumer pops-up dialog for analog value set					
5. Unknown sourc	e						
>	Sourced	Power in W and energy in Wh from unknown source					
		all differences caused by power-sensor inaccuracy					
6. Other consume	rs						
Consumed   Consumed power in W and energy in Wh by othe measured) consumers							
7. Temperature ar	nd humidity						
Temperature Temperature in <sup>o</sup> C							
	Humidity	Humidity in % RH					
8. Page navigation	ì						
	Home	Home screen					
	Power [W]	Power screen					
	Energy [Wh]	Energy screen					
	Timetable	Timetable screen					
	Tariff	Tariff screen					
	Limiter	Limiterscreen					
	EV fleet	EV fleet screen					
	IO mux	IO mux screen					
	Settings	Settings screen					
9. Exit							
	Exit	Close appliction					

<sup>1</sup> only for eStore

<sup>2</sup> only for first managed consumer

## power

Overview of current power distribution by source / consumer.



- 1. Sourced power
- Sourced power for each source
- Sums per source type

Total of all sourced power

2. Consumed power

Power for each consumer

### 3. Power distribution

Partial distributed power

## 4. Submeter (Blue outline)

Power meter is not part of internal circuit

				8 78 PLANT	SUM: 78			
				TOTAL	1218			
er <b>2</b> (	8			0			0	
PV plant (	0 0	0	0	8		6	0	
Battery	9 8	0		8 0				
other consumers 258	8 241			8 17				
	0 0 0 0			8 0				
	0 0 0 0			9 0 9 0			e e	
	2 1132			8 8			0	
Consumer 8 966	899			8 1 61			0	

### 1. Sourced power distribution

How sourced power is consumed by each consumer

2. Consumed power distribution

Who sources consumed power

## energy

Energy overview of a given time distributed by sources / consumers.

Grid L0   Grid HI   Grid D-L0   Grid D-HI   PV plant   Bettery   Unknown source     16229   0   0   0   10281   1638   0   0     1   GRID SUM:   16229   PLANT SUM:   10281   1638   0   0     1   GRID SUM:   16229   PLANT SUM:   10281   STORAdd SUM:   1638   0   0     0   0   7344   1427   0 <th>HEMS Configurator v</th> <th>1.2.0</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th> &gt;</th>	HEMS Configurator v	1.2.0										>
Grid L0   Grid HI   Grid D-L0   Grid D-HI   PV plant   Bettery   Unknown source     16220   0   0   0   10201   1638   0   0     1   GRID SUM:   16229   PLANT SUM:   10201   STORAdde SUM:   1638   0   0     Grid   8772   TOTAL:   20148   1427   0   0   0   0   0   0   0   0   0   0   0   1   0												
16220 0 0 0 10281 1638 0   1 GRID SUM: 16229 PLANT SUM: 10281 STORAGE SUM: 1638 0   rv plant 83 82 0 0 0 0 0 0 0 1427 1427 1427 1427 1437												
16220 0 0 0 10281 1638 0   1 0R10 SUM: 16229 PLANT SUM: 10281 STGAdde SUM: 1638 0   serid 8772 0 0 0 0 0 0 0   #v plant 83 82 0 <th></th> <th>ſ</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Unknown source</th> <th></th>		ſ									Unknown source	
TOTAL: 28148   timetable   Grid 8772 0												
Grid   6772   7344   1427     PV plant   83   82   0			1									
Pv plant 83 82 0								28148				timetable
Battery 1622 332 0 0 1289 0 0 11miter   Battery 1622 332 0 0 0 1289 0 0   Other consumers 7191 5106 0 0 1855 227 0 0 0   Consumer 1 0 </td <td></td> <td></td> <td>/</td> <td></td> <td></td> <td></td> <td>7344</td> <td></td> <td></td> <td></td> <td></td> <td></td>			/				7344					
Other consumers   7191   5388   0   0   1855   227     consumer 1	PV plant	83									0	
Other consumers   7191   5188   0   0   1855   227     Consumer 1												
Other consumers   7191   5188   0   0   1855   227     Consumer 1												
Consumer 1   Consumer 2   Consumer 3   7   5   6   0   0   1   0	Battery	1622					1289				8	limiter
Consumer 1   Consumer 2   Consumer 3   7   5   0	athen annunna			-		-						
Consumer 2   Consumer 3   7   5   0		7191	5108	9	0	0	1855		227			
Consumer 3   7   5   0   0   1   0 <th0< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th0<>												
Consumer 4   4   3   0												
Consumer 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0												
	Consumer 5											
												1
		7984	3 7984									<4
Energy since: sun 00.0000 00:00:00	Consumer 8	10469	6421	0	0		3418		628		6	7
									ſ	6	et all	
										Ores	ac all	
6reset all exit	:hu 14:59:21											

- 1. Sourced energy
- Sourced energy for each source
- Sums per source type

Total of all sourced energy

2. Consumed energy

Energy for each consumer

3. Energy distribution

Partial distributed energy

### 4. Submeter (Blue outline)

Power meter is not part of internal circuit

## 5. Energy since

Date and time since energy is recorded

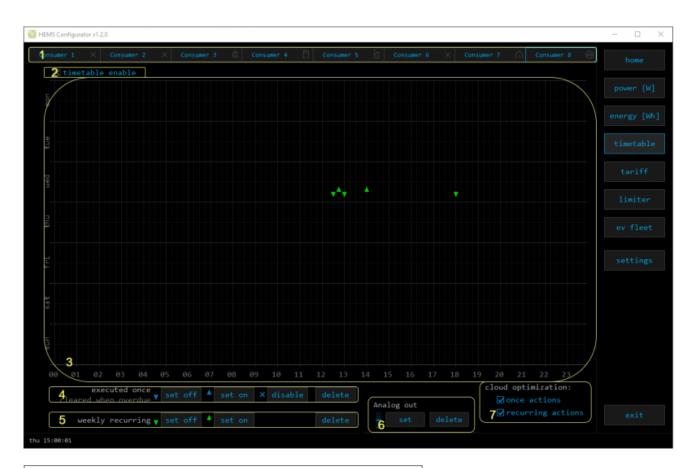
#### 6. Reset all

Long-press to reset all energy counters

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## timetable

Weekly timetable for managed consumers.



#### 1. Managed load menu

Switch between managed loads

2. Enable checkbox

When un-checked timetable is not executed

#### 3. Events grid

Events displayed in weekly grid (15 min resolution)

Click to select time and set event by clicking buttons below

#### 4. Once actions (top priority timetable actions)

Actions are executed and then automatically cleared.

"Disable" action will just disable recurring action.

#### 5. Recurring actions (low priority actions)

Actions are executed each week.

#### 6. Analog out <sup>1</sup>

Action to set analog output. Analog actions are recurring.

#### 7. Cloud optimization

When enabled (checked) cloud optimization is enabled.

<sup>1</sup> only for Consumer 1

## tariff

Weekly tariff timetable for grid energy per tariff distribution.

7/15



### 1. Tariff grid

Graphical weekly timetable with tariffs.

Click to select term, click-and-drag to select multiple terms.

## 2. Low tariff dates

Set low tariff dates for holidays.

### 3. Low tariff

Set low tariff for selected terms.

### 4. High tariff

Set high tariff for selected terms.

## lo tariff dates

Holiday dates when tariff is low

6	HEMS - Set I	LO tariff date	s —		×
	Set	LO ta	riff da	ates	
/		LO tari	ff date		$\mathbf{i}$
	day	month	day	month	
	88	80	88	88	
	80	80	80	80	
	80	80	80	80	
	80	80	80	80	
	80	80	80	80	
	80	80	80	80	
	80	80	80	80	
	88	80	80	88	
	80	80	80	80	
	80	80	80	80	
	81	80	80	80	
	80	80	80	80	
	2Use ea	ster mond	ays (Roma	in Catholi	c)
		ex	it		

### 1. Date table

Up to 24 days when tariff is low on holiday

### 2. Use easter mondays

Use preprogrammed roman-catholic easter monday holidays

## limiter

## Overview and configuration of limiter

HEMS Configurator v1.2.0															- 0
	(	POWER	FU1			rrent [A]			ltage [V]			(	ent limit		
	Total	L1		в	L1		L3	11 VO	L2		Phase order	L1		L3	
rid	A 1122	1105	42	-26	4.8	0.4	-1.8	231	233	234	111213	6	20	20	
V plant	°∭ -90			-90	410		-1.0			234	B				
a braile	X -36			-90			-1.0			2.34					
												1 Prá	ority	MAX [A]	
attery	i i i		_												
	ר														
onsumer 3				0	0.0	0.0	0.0			234				4	
onsumer 4				0 0			0.0 0.0			233 0				8	
onsumer 6							0.0			9				- 2	
		1101	42	-11	4.7	0.3	-2.1	23		234	1162113			20	
onsumer 8		976		16	4.2	0.0	0.0	231	235	234	L152 L3 L2 L3 L1	1		32	
ther consumers	960	130	42	48	3	0.4	-0.8								
cher consumers	220	130		48	010	0.4	-0.8								
GRID FREQUENCY [Hz] 50	<sup>,00</sup> 8														

1. Consumer management	t
Turn consumers on or off	
2. Power	
Total power and power for ea	ach phase
3. Current	
Current for each phase	
4. Voltage	
Voltage for each phase	
5. Phase order	
	er for grid power sensor and then set for other powers ging grid phase order will NOT apply to phase order of other
6. Current limit	
Current limit threshold for ma	ain grid fuse
7. Status, priority and cur	rent setpoint
<u>▲</u> ▲	Yellow status when limiter is enabled and active. Green status when enabled and not active
Priority	Device priority group (no limiter, limit last, limit second, limit first)
Max [A]1	Device expected current draw
8. Grid frequency	

Grid frequency measured on grid power meter sensor

<sup>1</sup> parameter is dynamically set for all devices, except for the EV charging stations

## ev fleet

## Overview and configuration of EV charging stations

BEMS Configurator v1.2	.0				- 🗆 X
1				Consumer 8	
f f				f f	
2					
				Paused (EVSE)	
3				Phase L2 EV [A]: 0 MAX [A]: 32	
				Last session:	
4				0 W 11465 Wh	
				044 h 59 min	
low Snip					
fri 08:56:42					

1. EV charging sta	tion management
Turn EV station on o	r off
2. EV vehicle statu	IS
GREY	Stand by
RED	Error
YELLOW	Charging paused
BLUE	Charging
GREEN	Charging ended
3. EV charging sta	tion status
Status	Status of EV charging station
Phase detection	Detection of utilized phases
EV [A]	EV charger max allowed current
MAX [A]	User set MAX charging current
3. EV charging see	sion
Power	Actual power draw
Energy	Energy delivered to EV
Duration	Session charging duration

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## io mux

### Overview and configuration of input/output ports IO mux

HEMS Co	onfigurator v1.2.2					- 0
IO	mux					
						tariff
		Select input/output type	out mode			
	QXB	Digital-1	normal			
	QX1	Digital-2	normal			
	QX2	Digital-3	normal			
	QX3	Digital-4	normal			
	1012	Temperature sensor	normal			
	1013	Linker reset	normal			
	1014	/	normal			
	1015	1	normal			
	IX0	Toggle consumer-1	normal			
	IX1	Toggle consumer-2	normal			
	IX2	Toggle consumer-3	normal 2			
						setting
12:42						
	Select	input/output type	out mode			

	Select input/output type	out mode
QX0	Digital-2	
QX1	Digital-5	
QX2	Digital-3	normal
QX3	Digital-6	normal
I012	Temperature sensor	normal
I013		normal
1014		normal
1015		normal
IX0	Enable consumer-1	normal
IX1	Toggle consumer-2	normal
IX2	Toggle consumer-3	normal

### 1. Select input/output type

On the left side there are defined MC controller (MC-230) ports to which could be assigned MC-230 functions (digital, linker reset, router reset, etc).

Default settings are for e.g. QX0  $\rightarrow$  digital 1 while digital 1 is defined for consumer 1 (settings page). It could be changed in a way to define new function to QX0 (linker reset)

If it is selected Enable consumer at input IX0,IX1 or IX2 it means that dedicated consumer will be managed (ON/OFF) by input signal on IX0,IX1 or IX2. For example, thermostat signal is wired to IXO port and via IO mux defined "Enable consumer 1" to IX0. While thermostat is active, it is consumer 1 active as well and vice versa.

Limitations: one temperature sensor is allowed, one consumer could be managed by one input only

#### 2. out mode

Managed consumer input/output mode (normal or inverted)

## settings

## Easy and intuitive system setup.

C HEMS Configurator v1.2.3									- 🗆 X
System settings    autodetect    HEMS: c20171 (v1.2.3 )    estore: c17456 enable									home power [W] energy [Wh]
× HIQ Home: c0 ⊠ enable detect									
X Virtual grid PS: Reable 1 Modbus cycle time: 4638 ms 2									
SOURCES icon source management	Υ		meter	sub		new devic	:e		
Grid Grid \Lambda 🗸 🕶	add		PM3-E-D		1				tariff
/ 🛛 🗸 🗸 ок.	add	del	PM1-E-D in	X					
/ × × /	add		1	X					limiter
energia de la contractión 🗙 🗙 🖊 de la contractión de la contrac	add		1	$\times$					limiter
Battery 🗍 🗸 OK.	add		eStore	$\mathbf{X}$					
en e	add		1	$\times$					ev fleet
					9			ting	
CONSUMERS icon consumer management			meter	sub	output	man.time	P nominal	0	IO mux
Washing machine	add		1	$\mathbf{X}$	Digital-1			$\mathbf{X}$	
ter de la sector de la companya de l	add		1	$\times$	Digital-2			×	settings
/ Х И К.	add		PM3-E-D	$\mathbf{X}$	Digital-3			×	Ľ
Heat-pump 💦 🗸 OK.	add		PM1-E-D	X	Digital-4			X	
Wireless plug   G   × /     Socket   ☑   ✓ 0K	add add	del del	/ PM3-I-D	X	/	0 min 0 min		X	
Electric car	add		EVSE NOON	R	/ EVSE MOON	0 min 0 min		X	
Electric car	add		INCH clust	X	INCH clust			X	
3 Hone 4 5	16		<b>7</b>	8	10				
Permanent memory parameters init parameters save parameters read parameters long-press @ autosave parameters		12	backup		res	tore			
fri 11:25:32									

## 1. System settings

1. System settings			
[ autodetect ]		Click to find HEMS in local network	
eStore HIQ Home	c	eStore serial number (automatically detected or can be entered manually).	
	[] enable	When checked HEMS will read Grid, first plant and first Storage directly from eStore (so there is no need to duplicate power-sensor).	
	[detect]	eStore address is cleared and new eStore can be detected.	
	c	HIQ Home serial number (automatically detected or can be entered manually).	
	[] enable	When checked HEMS will read Grid power and energy from HIQ Home (so there is no need to duplicate power-sensor).	
	[detect]	HIQ Home address is cleared so new can be detected.	
Virtual grid PS	[] enable	Check if system is without main grid power meter. Energy, power and currents are calculated from other power meters.	
2. Modbus cycle time			
Modbus cycle time	Time in ms for modbus communication to complete reading of all connected devices.		
3. Sources and Consun	ners setti	ngs table	
SOURCES	Source name		
icon	Source icon		
4. Device status			

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	1			
Status	Status OK, Warning, Error, Detected			
5. Device message				
source and consumer	Source or consumer power-sensor management			
management	message	Messages regarding source or consumer power-sensor		
6. Device configuration				
Configuration	add	Associate new power-sensor to source or consumer		
	del	Disassociate power-sensor from source or consumer & configure it as new power-sensor		
7. Device type				
meter	Source or consumer power-sensor type			
configuration	in/ex	Power plant connection <sup>1</sup>		
8. Submeter option				
sub	Check if this power meter or device is not part of internal circuit. Energy division for this device is ignored and outlined in blue border.			
9. Wireless settigs				
new device	Power-sensor configured as new one detected or wireless module configuration <sup>2</sup>			
Wireless setting	Setting up wireless modules: pairing, adding and delete the wireless modules and setting repeater level			
10. Device output				
output	Select consumer output type			
	<<>>	Set repeater level <sup>3</sup>		
man. time	Managed consumer manual override timer			
P nominal	Enter consumer's power in Watts. It is disabled if there is assigned power sensor to this consumer.			
clock	Enable timetable			
11. Permanent memory parameters				
[init parameters]	Init all parameters to default values			
[save parameters]	Save all parameters to permanent memory			
[read parameters]	Read all parameters from permanent memory			
[] autosave parameters	Parameters will be automatically saved to permanent memory in 15 minutes after last parameter change			
12. Backup / Restore to PC				
[backup]	Backup all parameters to PC <sup>4</sup>			
[restore]	Restore all parameters from PC backup <sup>₄</sup>			
L	!			

<sup>1</sup> only for the first power plant

<sup>2</sup> wireless setting must be enabled

<sup>3</sup> only for wireless modules and wireless setting must be enabled

<sup>4</sup> older versions of backup files may be used. Any unsuccessfully backed or restored parameters will be displayed but operation will end successfully if you use **continue**.

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