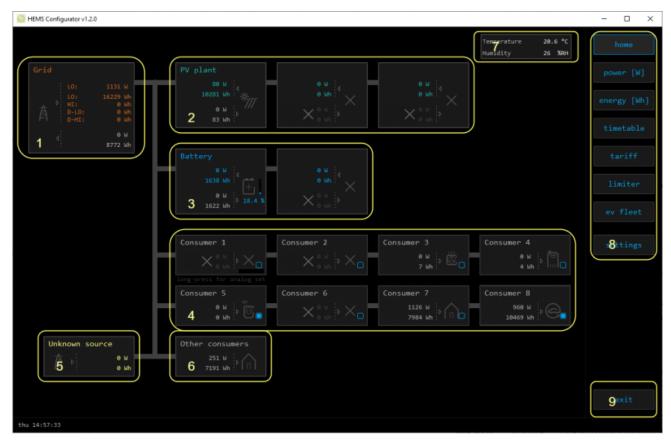
# **HEMS v1.2.3 Configurator**

Latest version of HEMS Configurator can be found under download folder.

## home

Basic system overview.



1. Grid		
	From arid	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 system	S	
<	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						
Ac		all differences caused by power-sensor inaccuracy						
> v	Consumed	Consumed power in W and energy in Wh by other (not measured) consumers						
7. Temperature and humidity								
	Temperature	Temperature in <sup>o</sup> C						
	Humidity	Humidity in % RH						
8. Page navigation	n							
	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

3/15

erid LO 1: cr2 0 PV plant 0 Sattery 0	erid HI 140 0 GRID SUM: 0 0	1140	PV plent           0         78           PLANT         SUN:           TOTAL:         SUN:           0         0	Battary 0 78 STORAGE SUM: 0 0	Unknown source 0 0	
er2 0	140 0 GRID SUM:	0 1140	9 78 PLANT SUM: TOTAL1 1218	0 78 STORAGE SUM: 0	0 0	
≈2 0 w plant 0	140 0 GRID SUM:	0 1140	9 78 PLANT SUM: TOTAL1 1218	0 78 STORAGE SUM: 0	0 0	
P2 0	GRID SUM:	1140	PLANT SUM: TOTAL: 1218	78 STORAGE SUM:	0 0	
v plant 0			TOTAL: 1218	0	0 0	
v plant G	0 0	0				
v plant G	0 0	0	8			
	8 8	0	8			
attery 0					0	
lattery 0						
iattery 0						
			8 8			
	241 0	8	8 17			
onsumer 1						
Consumer 3 0			0 0			
Consumer 4 0 Consumer 5 0			e e		0	
Consumer 6					6	
			8 8		0	
	899 0		8 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.

5/15

🔯 HEMS Configurator v	/1.2.0										- 🗆 X
	ſ	Grid LO	Grid HI	Grid D-LO	Grid D-HI	PV plant		Battery		Unknown source	energy [Wh]
		1								Ň	
						TOTAL:	28148				
Grid	8772										
PV plant	83									0	
Battery	1622		8		9	1289				0	
	1										
Other consumers	7191										
Consumer 1											
Consumer 2											
Consumer 3	7									0	
Consumer 4	4									0	
Consumer 5	Θ									0	
Consumer 6		~									
Consumer 8	7984	<b>3</b> 7984								2	4
	10469		0	0	0	3418		628			7
Energy since: sun	00.00.0000	88:88:88									
		)									
								,			
									6nes	et all	
thu 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

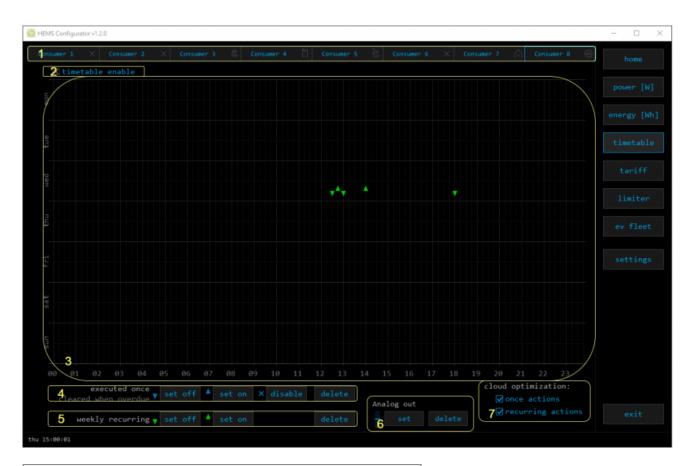
Date and time since energy is recorded

#### 6. Reset all

Long-press to reset all energy counters

## 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

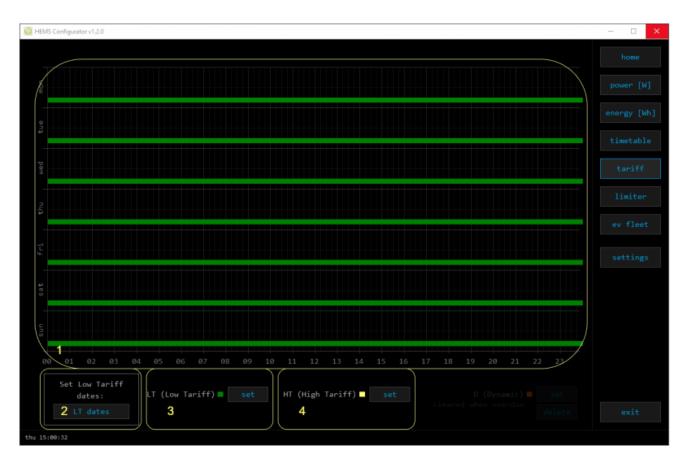
When enabled (checked) cloud optimization is enabled.

<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

G	HEMS - Set I	LO tariff date	5 —		×
	Set	LO ta	riff da	ates	
/		LO tari	ff date		
	day	month	day	month	
	88	80	80	88	
	80	80	80	80	
	80	80	80	80	
	88	80	80	88	
	80	80	80	88	
	80	80	80	80	
	80	80	80	88	
	88	80	88	88	
	88	80	80	8	
	80	80	80	80	
	81	80	80	88	
	88	80	88	88	
	2Use ea	ster mond	ays (Roma	n 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

POMER [W]         Current [A]         Voltage [V]         Phase order         Current limit [A]         Current [A]         Phase order         Current limit [A]         L1         L2         L3         L3         L2         L3         L3         L3         L2         L3         L3 <thl3< th=""><th>HEMS Configurator v1.2.0</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>- 0</th></thl3<>	HEMS Configurator v1.2.0															- 0
POMER [W]         Current [A]         Voltage [V]         Phase order         Current limit [A]         Current [A]         Phase order         Current limit [A]         L1         L2         L3         L3         L2         L3         L3         L3         L2         L3         L3 <thl3< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></thl3<>																
Total       L1       L2       L3       L1       L2       L3       L1       L2       L3       Phase order       L1       L2       L3       L3 <th></th> <th></th> <th></th> <th></th> <th></th> <th>_</th> <th></th> <th></th> <th>_</th> <th></th> <th></th> <th></th> <th>_</th> <th></th> <th></th> <th></th>						_			_				_			
Total       L1       L2       L3       L1       L2       L3       Phase order       L1       L2       L3         reid       1122       1166       42       -26       4.6       0.4       -1.8       231       233       234       L1       L2       L3       L1       L2       L3       L3       L1       L2       L3       L3       L3       L3       L3       L3       L4       L4       L3       L4       L3       L3       L3       L3       L3       L4       L4       L4       L4       L3       L4       L4 <thl4< th="">       L4       <thl4< th=""></thl4<></thl4<>			POWER	1 FW1		Cu	rrent [A]		Vo	ltage [V]			Cur	rent limi	t FAT	
v plant       -90       -90       -1.0       234       U3         attery       X       I       Priority       MAX (A)       timetal         attery       X       I       Priority       MAX (A)       timetal         answer 1       I       I       Priority       MAX (A)       timetal         answer 2       I       I       Image: Conserver 2		Total										Phase order	L1 _			
v plant       -90       -90       -90       -1.0       234       L3       Limit timetal         attery            1       Priority       MAX (A)       Limit first         attery               1       Priority       MAX (A)       Limit first        Limit first       4        1       Imit first       4	rid	A 112	1106	42	-26	4.8	0.4	-1.8	231	233	234	L1 L2 L3	<u>,6</u>	20	20	
attery       Image: 1 model       Image: 2 mode	V plant	ý	1		-98			-1.0			234					
attery																
attery       x <td></td> <td>! Pr</td> <td>iority</td> <td>MAX [A]</td> <td>taniff</td>													! Pr	iority	MAX [A]	taniff
onsumer 1       0	attery	Ē														
onsumer 1       0		X														
onswer 2       0<	_	_														
misurer 2       0	nsumer 1															
Onsumer 3       O       0       0       0       0       0       0       0       0       0       0       0       234       L2[L3]L1       Limit first 4       Limit second 8         Onsumer 4       0																ev fleet
onsumer 4       0       0       0       0.0       233       L3       Limit second       8         onsumer 5       0       0       0.0       0.0       0       0       0       13       Limit second       2       111       152       153       152       153       152       153       152       153       152       153       152       153       152       153       152       153       152       153					0	0.0	0.0	0.0			234				4	
onsumer 6       0       1129       1101       42       -11       4.7       0.3       -2.1       234       233       234       1152/1.3       17       1imiter       20         onsumer 8       960       976       0       16       4.2       0.0       0.0       251       235       234       1.152/1.3       17       1imiter       20         ther consumers       2.0       130       42       48       0.0       0.4       -0.8       251       235       234       1.21.3/L1       No limiter       32         RID FREQUENCY [Hz]       50.00       8       0.4       -0.8       0.4       -0.8       0.4		0 (			0			0.0			233				8	
ansumer 7       1129       1101       42       -11       4.7       0.3       -2.1       233       234       1152       12       17       1imiter       20         ansumer 8       968       976       0       16       4.2       0.0       0.0       231       235       234       12       13       12       160       1imiter       32         ther consumers       220       130       42       48       0.6       0.4       -0.8       0.4       <		16 (			0			0.0			0				2	
ther consumers 22 130 42 48 03 0.4 -0.8																
ther consumers 22 130 42 48 03 0.4 -0.8									234			L152 L3	7			
RID FREQUENCY [Hz] 50,00		966	976	_	16	4.2		_	231	235	234	12/13/11	, No		32	
	ther consumers	22			48	6%6	0.4	-0.8								
	RID FREQUENCY [Hz] 50	9,09 <mark>0</mark>														
		0														

9/15

1. Consumer management						
Turn consumers on or off						
2. Power						
Total power and power for each	n phase					
3. Current						
Current for each phase						
4. Voltage						
Voltage for each phase						
5. Phase order						
	or grid power sensor and then set for other powers ng grid phase order will NOT apply to phase order of other					
6. Current limit						
Current limit threshold for mair	grid fuse					
7. Status, priority and curre	nt 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] <sup>1</sup>	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 station management							
Turn EV station on or	<sup>-</sup> off						
2. EV vehicle statu	S						
GREY	Stand by						
RED	Error						
YELLOW	Charging paused						
BLUE	Charging						
GREEN	Charging ended						
3. EV charging station 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 ses	sion						
Power	Actual power draw						
Energy	Energy delivered to EV						
Duration	Session charging duration						

# ол **П**аан

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## io mux

Overview and configuration of input/output ports IO mux

😳 HEMS Conf	figurator v1.2.2			- 0
IO r	mux			
	Select input/output type	out mode		
	QX0 Digital-1	normal		
	QX1 Digital-2 QX2 Digital-3	normal		
	QK3 Digital-4	normal		
	IO12 Temperature sensor	normal		
	I013 Linker reset	normal		
	I014 / I015 /	normal		
	IX0 Toggle consumer-1	normal		
	IX1 Toggle consumer-2	normal		
	IX2 Toggle consumer-3	normal 2		
iu 12:42:3				
10 12:42:30				
	Select input/output type	out mode		
	Select input/output type Digital-2	out mode normal		
QXØ	Digital-2	normal		
QXØ QX1	Digital-2 Digital-5	normal normal		
QX0 QX1 QX2	Digital-2 Digital-5 Digital-3	normal normal normal		
QX0 QX1 QX2 QX3	Digital-2 Digital-5 Digital-3 Digital-6	normal normal normal normal		
QX0 QX1 QX2 QX3 IO12	Digital-2 Digital-5 Digital-3 Digital-6 Temperature sensor	normal normal normal normal normal		
QX0 QX1 QX2 QX3 I012 I013	Digital-2 Digital-5 Digital-3 Digital-6 Temperature sensor Linker reset	normal normal normal normal		
QX9 QX1 QX2 QX3 I012 I013	Digital-2 Digital-5 Digital-3 Digital-6 Temperature sensor	normal normal normal normal 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

IX0 IX1 IX2

Managed consumer input/output mode (normal or inverted)

# settings

## Easy and intuitive system setup.

😳 HEMS Configurat	tor v1.2.3												- 0 X
Syster	n settin	gs											
J HEMS:	c20171 (v1.	2.3)											
✓ eStor	e: c17456 🗸	enable	detect										
× нід н			detect										
× Virtu	al grid PS: 🖂	enable	1										
Modbu	s cycle time: 463	8 ms	2					_					
SOURCES	icon	$\gamma$		source management	Ϋ́		meter	sub		new devic	e		
Grid		- A 🗸	ок		add		PM3-E-D		1				
			ок.		add		PM1-E-D in	$\times$					
		$\times \times$	1		add		/	X					limiter
	/	XX	/		add	del	/	$\times$					
			ок.		add		eStore	X					ev fleet
	/	·   X   X	/		add		/	$\mathbf{X}$	9			ting	ev fleet
		X							Ľ		1033 300	C TUB	
CONSUMERS	icon			consumer management			meter	sub	output	man.time	P nominal	1	
	Washing machine				add		1	X	Digital-1		5000 M	X	
		× ×	-		add		1	×	Digital-2			×	
			ок.		add		PM3-E-D	X	Digital-3			X	
			ок. /		add add	del del	PM1-E-D	X	Digital-4	0 min 0 min		X	
			/ ОК		add	del	/ PM3-I-D	Ê.	/	0 min		×	
			ок.		add		EVSE MOON	Ř	EVSE MOON			X	
		e 🗸	ок.		add		INCH clust	$\overline{\mathbf{X}}$	INCH clust			×	
3		64	5		L6		., Հ	<b>8</b> )	10				
Perma init p		iory par	parameter rameters read			12	backup		res	tore			
11		autosa	ve panameters	]									

## 1. System settings

1. System settings							
[ autodetect ]		Click to find HEMS in local network					
	c	eStore serial number (automatically detected or can be entered manually).					
eStore	[] 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).					
HIQ Home	[] 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		ns for modbus communication to complete reading of all devices.					
3. Sources and Consum	ners setti	ngs table					
SOURCES	Source n	ame					
icon	Source ic	on					
4. Device status	. Device status						

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Status	Status O	K, 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	Manageo	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>		
• • • •			

<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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