Robotina Charger v2.0.0

Latest version of Robotina Charger (EVSE) can be found under download map.

EVSE overview

Note: Blue color presents editable value, white color values are not editable.

1. EVSE Name	
Name of EVSE - editable by press on name	
2. Limiter sign	
	Yellow status when limiter is enabled and active. Green status when enabled and not active. Empty when limiter is not set.
3. Data from current charging session	
EV charging icon - Button & LED light	LED light presents charger state, while icon is button. Short press for enabling/disabling charger, long press for priority charging and error delete.
State - charger status	Communication error, Unknown, Available, EV not connected, Starting, Charging, EV paused, EVSE paused, EV not connected, Charging ended, Charging fault, Unpausing, Unavailable, No EVSE response, Locked, Stopping
Phases - number of used phases while charging	3 phases, Phase L1, Phase L2, Phase L3, Unknown phase, 2 phases
Power	Real-time charging power of EV
EVSE max	Real-time charging current by phase
Max current	Editable max allowed charging current
Last session	Time - duration of charging session, Energy - consumed energy of charging session
4. error message(s)	
Possible errors are as follow: CP positive voltage, CP negative voltage, RCD sensor trip, Overvoltage, Undervoltage, Charge with ventilation, PS reading error, Current is higher than allowed, RCD sensor malfunction, Internal temperature is too high **Note**: for resolving errors please see table below	
5. EVSE settings	
Priority charging	Utilize all available power to charge as fast as possible, ignore economy charging
Locked	If locked it is disabled unauthorized use of charging station, authorization is possible with RFID card, key fob or by cloud application
Allow charging with ventilation	If EV requests ventilation the EVSE allows ventilation or deny charging
Disable button	Disable functionality of button on housing
Turn LED off after 3 minutes of inactivity	LED light is turned off after 3 minutes

Economy charging	**Use current**: set desired current for charging **Charge only at LO tarriff**: charging possible at low tariff only Note: LO tarriff must be set **Charge with surplus energy**: *Off*; *Total* - dynamically charge EV and try to keep total power on grid PS close to zero; *Only from surplus* - charges only if there is surplus energy on all phases; *All surplus* - charge EV with if surplus is available
EVSE works as slave	EVSE supports Modbus TCP protocol and it is slave to master EVSE charger with its SN. Green tick if communication is OK, red X for lost communication
Limit if connection with master is lost	In case of lost communication to master, set max charging current
6. Event log	
Shows last 10 charging session	
7. RFID and QR	
Add or delete key fob, card or QR code for managing authorized access to charger station	
8. Time & date and SW version	
Editable time and date with info of software release	
9. config	
Runs charger configurator, for more info see in following text	
10. autodetect	
Click to find Robotina charger in local network	

Error table

Robotina charger recovers error automatically. To delete error by yourself long press button on charger housing or on application. Charging is stopped while error is active.
If red light still flashes, please read table bellow.

Error	Possible causes	Possible solution
CP positive voltage CP negative voltage	Measured voltage on CP pin is out of range.	Check your charging cable and plug. Reconnect your EV.
RCD sensor trip	DC current leak detected.	Please contact an authorized car service department.
RCD sensor malfunction	RCD sensor is damaged or not connected.	Please contact the service department of your EVSE supplier.
Undervoltage Overvoltage	Supply voltage is out of range.	Please contact EVSE installer.
Charge with ventilation	EV requests “Charging with ventilation” and “Charging with ventilation” is not enabled on EVSE	Enable “Allow charging with ventilation” if charged EV is located in ventilated area.
PS reading error	No communication with internal power sensor.	Please contact the service department of your EVSE supplier.
Current is higher than allowed	Vehicle draws more power than allowed.	Please try to charge another EV, if error still appears, please contact the service department of your EVSE supplier. Otherwise, please contact an authorized car service department.

Error	Possible causes	Possible solution
Internal temperature is too high	Temperature inside of charger is too high.	Make sure charger is not exposed to direct sunlight. Please contact charging station installer.

HEMS v2.0.0 Configurator

home

Basic system overview.

1. Grid		
›	From grid	Tariff (LO, HI, D-LO, D-HI) and power from grid in W
		Imported energy by tariff in Wh
‹	To grid	Power exported to grid in W
		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 %[1]	SOC	Battery State Of Charge
4. Consumers		
›	Consumed	Consumed power in W and energy in Wh
[]	Status	Output status for managed consumers
click	Toggle	Click in frame toggles managed consumers output
5. Unknown source		
›	Sourced	Power in W and energy in Wh from unknown source
		Accumulate also all differences caused by power-sensor inaccuracy
6. Other consumers		
›	Consumed	Consumed power in W and energy in Wh by other (not measured) consumers
7. Page navigation		
	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
8. Exit		
	exit	Close appliction

[1] only for eStore

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 (Green outline)
Power meter is not part of internal circuit

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.

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 (Green 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. Cloud optimization
When enabled (checked) cloud optimization is enabled.

tariff

Weekly tariff timetable for grid energy per tariff distribution.

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

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

1. Grid Current limit	
MAX current limit	Current limit threshold for main grid fuse
Enable cluster slave connection	Current limit threshold if charger lost connection with master
Enable limiting from cloud	Current limit threshold if charger lost connection with cloud
2. Consumer management	
Turn consumers on or off	
3. Power	
Total power and power for each phase	
4. Current	
Current for each phase	
5. Voltage	
Voltage for each phase	
6. Phase order	
First set correct phase order for grid power sensor and then set for other power sensors/devices. **NOTE:** changing grid phase order will NOT apply to phase order of other connected devices!	
7. Status and priority	
	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)
8. Grid frequency	
Grid frequency measured on grid power meter sensor	

ev fleet

Overview and configuration of EVSE stations. Up to 7 external EVSE supported.

1. EVSE Robotina Charger
EVSE configurator, for details please read Robotina charger
2. Other EVSE (charging station) linked to Robotina charger
Robotina charger could have up to 7 charging stations directly connected. Same settings as above apply.

io mux

Overview and configuration of input/output ports IO mux

1. Wireless relay WR-1 output function
On left side in column are WR-1 modules WR-1 (max 8) with corresponding status (active + communication status). To each WR-1 could be assigned XEMS function (e.g. digital, linker reset, router reset, heat pump channel etc) with output mode (normal or inverted).
2. HEMS input and output function (wired connection) - for HEMS only
In column on the left side are MC controller (MC-230) ports to which could be assigned MC-230 functions (digital, linker reset, router reset, etc) with output mode (normal or inverted).
Default settings are for e.g. QX0 → digital 1 while digital 1 is defined for consumer 1 (settings page). It could be changed in a way to define new function role to QX0 port e.g. for 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
3. Heat pump supported operation mode
To control Heat pump by EVSE define supported operation(control) mode based on heat pump specification. E.g. SGRHP supports external control by two channels (Off, Normal, Increased and Increased + additional heater) thus select them in table. Note: Before selecting modes, heat pump must be defined in setting page!
4. Slave device IP address
For device (PV inverter or external EVSE) define its IP address.

settings

1. System settings		
[autodetect]		Click to find EVSE in local network.
eStore	c…..	eStore serial number (automatically detected or can be entered manually).
	[] enable	When selected EVSE will obtain necessary data (power, voltage…) directly from battery storage system, no need to additional power sensor.
	[detect]	eStore address is cleared and new eStore can be detected.
HIQ Home	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	Select if system is without main grid power meter. Energy, power and currents are calculated from other power meters.
Internal temperature	Temperature inside of EVSE	
Modbus (wired) cycle time	Cumulative reading time of all wired power sensor in ms	
Modbus (wireless) cycle time	Cumulative reading time of all wireless connected power sensor in ms	
Modbus (TCP) cycle time	Cumulative reading time of all TCP connected devices in ms	
IP address	IP address of EVSE	
DHCP	Select for DHCP to obtain an IP address automatically → apply and save to confirm.	
Static IP	Set static IP to EVSE → apply and save to confirm.	
Note: If IP settings are failed, restart EVSE with jumper between IX1-GND to DHCP		
2. Sources and Consumers settings table		
SOURCES	Source name	
icon	Source icon	
3. Device status		
Status	Status OK, Warning, Error, Detected	
4. Device message		
source and consumer management	Source or consumer power sensor management	
	message	Messages related to source or consumer power sensor
5. 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
6. Device type		
meter	Source or consumer power-sensor type	
configuration	in/ex	Power plant connection[1]

7. 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 green color.
8. New device	
Detected new power sensor.	
9. Device output	
output	Select consumer output type
man. time	Managed consumer manual override timer
P nominal	Enter power for device in case where power sensor is not assigned to device.
clock	Enable timetable
10. 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
11. WM / WR settings	
Scan w-less dev.	Press to start scanning for power sensors wirelessly connected via WM-1 module as well as for WR-1 relay. Scanning is active for 5 minutes.
WM / WR binding	Press to add new WM-1 or/and WR-1 to existing group or to create new New group of wireless modules
12. Backup / Restore to PC	
[backup]	Backup all parameters to PC[4]
[restore]	Restore all parameters from PC backup[4]

1 only for the first power plant

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**.