Development Documentation

This document should give an overview regarding the used APIs and the possible data that can be queried.

Data that can be accessed in the local network from a Senec V3 device

Basis for this documentation is the firmware version 0826.

The following information are provided by the device. Since no open acceccible API documentation exists, the following description is an assumption.

- The following information can be accessed sending a post request with a JSON-Payload to https://[IP of the senec device]/lala.cgi
- As response a JSON String is returned
- Please note: Depending on the firmware version the Request has to be via http or https. (https starting with the firmware version 825)

Logfile

The logfile of the device can be accessed via URL and shows a raw text file. The URL has the following format: `https://[IP of the device]//log/[year]/[month]/[day].log` (and **YES** there are two `/` behind the ip-address since v0826)

Example: https://192.168.1.115//log/2023/10/05.log

VarMon & Chart

It is possible to get a list of all variables and their values of the device, even if Senec claimed that this data is only accessible by themselves (since 0826) - the access is still possible for every owner without any kind of hacks.

version	url
before v0825	`https://[IP of the device]/vars.html`
v0825	`https://[IP of the device]/Vars.html`
v0826	`https://[IP of the device]//vars.html`

Example: https://192.168.1.115//vars.html

lala.cgi Request Example

To gather data we have to send a POST-Request to the Senec device ("lala.cgi"), that has a JSON-String as payload. Here an request example with all objects that can be requested. Many of the objects have sub-objects:

```
POST https://[my-ip]/lala.cgi HTTP/1.1
content-type: application/json

{
"DEBUG":{},
"BAT1":{},
"BAT1OBJ1":{},
"BMS":{},
"BMS_PARA":{},
"CASC":{},
"DISPLAY":{},
"ENERGY":{},
"FACTORY":{},
"FEATURES":{},
"FILE":{},
"GRIDCONFIG":{},
"LOG":{},
"PM1":{},
"PM1OBJ1":{},
"PM1OBJ2":{},
"PV1":{},
"PWR_UNIT":{},
"RTC":{},
"SELFTEST_RESULTS":{},
"SOCKETS":{},
"STATISTIC":{},
"STECA":{},
"SYS_UPDATE":{},
"TEMPMEASURE":{},
"TEST":{},
"UPDATE":{},
"WALLBOX":{},
"WIZARD":{},
"CURRENT_IMBALANCE_CONTROL":{},
"BMZ_CURRENT_LIMITS":{},
"CELL_DEVIATION_ROC":{},
"SENEC_IO_INPUT":{},
"SENEC_IO_OUTPUT":{},
"IPU":{},
"FAN_TEST":{},
"FAN_SPEED":{}
}
```

Response Example

The response returns a JSON-String for the requested object. In this example the "ENERGY" was used. The values are in hex format and have to be decoded in dec, int or float.

```
{
    "ENERGY": {
        "STAT_STATE": "u8_0D",
        "GUI_BAT_DATA_POWER": "fl_BF08E2C1",
        "GUI_INVERTER_POWER": "fl_4599AD17",
        "GUI_HOUSE_POW": "fl_442047C0",
        "GUI_GRID_POW": "fl_C585A866",
        "GUI_BAT_DATA_FUEL_CHARGE": "fl_428C0000",
        "GUI_CHARGING_INFO": "u8_00",
        "GUI_BOOSTING_INFO": "u8_00"
    }
}
```

Category DEBUG

Information from the DEBUG-Object:

Object	Example value	Description
CHARGE_TARGET		
DC_TARGET		
FEED_TARGET		
PU_AVAIL		
SECTIONS	Assumption: Could be a (not complete) list of objects that contain data.	

Category "ENERGY"

Information from the ENERGY-Object:

Object	Example value	Description
CAPTESTMODULE	[0.0, 0.0, 0.0, 0.0]	
GUI_BAT_DATA_COLLECTED	1	
GUI_BAT_DATA_CURRENT	-6.849999904632568	
GUI_BAT_DATA_FUEL_CHARGE	82.82827758789062	Battery fuel charge in percent, as shown in the gui, wenn accessing the device via browser.
GUI_BAT_DATA_MAX_CELL_VOLTAGE	3929	
GUI_BAT_DATA_MIN_CELL_VOLTAGE	3923	
GUI_BAT_DATA_POWER	-376.57867431640625	Positive: Watt with which the battery is charged; Negative: Watts with which the battery is discharged
GUI_BAT_DATA_VOLTAGE	54.974998474121094	
GUI_BOOSTING_INFO	1	
GUI_CAP_TEST_STATE	0	
GUI_CHARGING_INFO	0	
GUI_GRID_POW	-6.079999923706055	A positive value corresponds to a mains reference, a negative value to a net feed-in. This is the same data shown in the gui, when accessing the device via browser.
GUI_HOUSE_POW	370.4986877441406	
GUI_INIT_CHARGE_START	0	
GUI_INIT_CHARGE_STOP	0	
GUI_INVERTER_POWER	-0.0	Sum of currently generated PV electricity in watts
GUI_TEST_CHARGE_STAT	0	
GUI_TEST_DISCHARGE_STAT	0	
INIT_CHARGE_ACK	0	
INIT_CHARGE_DIFF_VOLTAGE	0.0	
INIT_CHARGE_MAX_CURRENT	0.0	
INIT_CHARGE_MAX_VOLTAGE	0.0	
INIT_CHARGE_MIN_VOLTAGE	0.0	

Object	Example value	Description
INIT_CHARGE_RERUN	0	
INIT_CHARGE_RUNNING	0	
INIT_CHARGE_STATE	0	
INIT_CHARGE_TIMER	0	
INIT_DISCHARGE_MAX_CURRENT	0.0	
LI_STORAGE_MODE_RUNNING	0	
LI_STORAGE_MODE_START	0	
LI_STORAGE_MODE_STOP	0	
OFFPEAK_DURATION	0	
OFFPEAK_POWER	0.0	
OFFPEAK_RUNNING	0	
OFFPEAK_TARGET	100	
SAFE_CHARGE_FORCE	0	
SAFE_CHARGE_PROHIBIT	0	
SAFE_CHARGE_RUNNING	0	
STAT_HOURS_OF_OPERATION	9993	Number of hours since the system was activated
STAT_LIMITED_NET_SKEW	0	
STAT_STATE	16	Status of the system, see detailed definition in section "Translation of System State Name Enums to Text"
VPP_ACTIVATE_EXPORT_LIMIT	0	
VPP_ACTIVATE_TARGET_POWER	0	
VPP_DAILY_PARAMETER_RESET	1	
VPP_ENDTIME_HOUR	0	
VPP_ENDTIME_MINUTE	0	
VPP_EXPORT_LIMIT	0	
VPP_IGNORE_COUNTRY_TYPE	0	
VPP_IS_ACTIVE	0	
VPP_LAST_CHANGE_UTC	0	
VPP_STARTTIME_HOUR	0	
VPP_STARTTIME_MINUTE	0	
VPP_TARGET_POWER	0.0	
ZERO_EXPORT	0	

Translation of ENERGY STAT_STATE Name ENUMS to Text

Representations of STAT_STATE

ENUM	Description
0	INITIALZUSTAND
1	KEINE KOMMUNIKATION LADEGERAET
2	FEHLER LEISTUNGSMESSGERAET
3	RUNDSTEUEREMPFAENGER
4	ERSTLADUNG
5	WARTUNGSLADUNG
6	WARTUNGSLADUNG FERTIG
7	WARTUNG NOTWENDIG
8	MAN. SICHERHEITSLADUNG
9	SICHERHEITSLADUNG FERTIG
10	VOLLLADUNG
11	AUSGLEICHSLADUNG: LADEN
12	SULFATLADUNG: LADEN
13	AKKU VOLL
14	LADEN
15	AKKU LEER
16	ENTLADEN
17	PV + ENTLADEN
18	NETZ + ENTLADEN
19	PASSIV
20	AUSGESCHALTET
21	EIGENVERBRAUCH
22	NEUSTART
23	MAN. AUSGLEICHSLADUNG: LADEN
24	MAN. SULFATLADUNG: LADEN
25	SICHERHEITSLADUNG
26	AKKU-SCHUTZBETRIEB
27	EG FEHLER
28	EG LADEN
29	EG ENTLADEN
30	EG PASSIV
31	EG LADEN VERBOTEN
32	EG ENTLADEN VERBOTEN
33	NOTLADUNG
34	SOFTWAREAKTUALISIERUNG
35	FEHLER: NA-SCHUTZ

ENUM	Description
36	FEHLER: NA-SCHUTZ NETZ
37	FEHLER: NA-SCHUTZ HARDWARE
38	KEINE SERVERVERBINDUNG
39	BMS FEHLER
40	WARTUNG: FILTER
41	ABSCHALTUNG LITHIUM
42	WARTE AUF ÜBERSCHUSS
43	KAPAZITÄTSTEST: LADEN
44	KAPAZITÄTSTEST: ENTLADEN
45	MAN. SULFATLADUNG: WARTEN
46	MAN. SULFATLADUNG: FERTIG
47	MAN. SULFATLADUNG: FEHLER
48	AUSGLEICHSLADUNG: WARTEN
49	NOTLADUNG: FEHLER
50	MAN: AUSGLEICHSLADUNG: WARTEN
51	MAN: AUSGLEICHSLADUNG: FEHLER
52	MAN: AUSGLEICHSLADUNG: FERTIG
53	AUTO: SULFATLADUNG: WARTEN
54	LADESCHLUSSPHASE
55	BATTERIETRENNSCHALTER AUS
56	PEAK-SHAVING: WARTEN
57	FEHLER LADEGERAET
58	NPU-FEHLER
59	BMS OFFLINE
60	WARTUNGSLADUNG FEHLER
61	MAN. SICHERHEITSLADUNG FEHLER
62	SICHERHEITSLADUNG FEHLER
63	KEINE MASTERVERBINDUNG
64	LITHIUM SICHERHEITSMODUS AKTIV
65	LITHIUM SICHERHEITSMODUS BEENDET
66	FEHLER BATTERIESPANNUNG
67	BMS DC AUSGESCHALTET
68	NETZINITIALISIERUNG
69	NETZSTABILISIERUNG
70	FERNABSCHALTUNG
71	OFFPEAK-LADEN

ENUM	Description
72	FEHLER HALBBRÜCKE
73	BMS: FEHLER BETRIEBSTEMPERATUR
74	FACTORY SETTINGS NICHT GEFUNDEN
75	NETZERSATZBETRIEB
76	NETZERSATZBETRIEB AKKU LEER
77	NETZERSATZBETRIEB FEHLER
78	INITIALISIERUNG
79	INSTALLATIONSMODUS
80	NETZAUSFALL
81	BMS UPDATE ERFORDERLICH
82	BMS KONFIGURATION ERFORDERLICH
83	ISOLATIONSTEST
84	SELBSTTEST
85	EXTERNE STEUERUNG
86	TEMPERATUR SENSOR FEHLER
87	NETZBETREIBER: LADEN GESPERRT
88	NETZBETREIBER: ENTLADEN GESPERRT
89	RESERVEKAPAZITÄT
90	SELBSTTEST FEHLER
91	ISOLATIONSFEHLER
92	PV-MODUS
93	FERNABSCHALTUNG NETZBETREIBER
94	FEHLER DRM0
95	BATTERIEDIAGNOSE
96	BALANCING
97	SICHERHEITSENTLADUNG
98	BMS FEHLER - MODULUNGLEICHGEWICHT
99	AUFWACHLADUNG

Category FEATURES

Features of Senec device, represented in the FEATURES-Object:

Object	Example value	Description
CAR	1	installation of wallbox possible?
CLOUDREADY	1	
ECOGRIDREADY	1	
HEAT	1	Connection to heat module like asko heat possible?

Object	Example value	Description
ISLAND	1	module backup power installed?
ISLAND_PRO	1	module backup power pro installed?
PEAKSHAVING	1	peak shaving is possible
SGREADY	1	Smart grid ready
SHKW	0	
SOCKETS	0	

Category FILE

Returns an empty object

Category LOG

Information represented bei the LOG-Object:

Object	Example value	Description
LOG_IN_BUTT	0	
LOG_IN_NOK_COUNT	0	Number of wrong login attempts
LOG_OUT_BUTT	0	
PASSWORD		
USERNAME		
USER_LEVEL	0	

Category DISPLAYSYS_UPDATE

Unknown, what the DISPLYSYS-Object represents:

"DISPLAYSYS_UPDATE":{ "OBJECT_NOT_FOUND":"" },

Category WIZARD

Information represented by the WIZARD-Object:

Object	Example value	Description
APPLICATION_HASH	05feefa49abec4a123f6883386a48497562caa8	
APPLICATION_VERSION	1824	
BATT_IPU_MISMATCH	0	
BOOT	1	
CHARGE_PRIO	0	
CONFIG_CHECKSUM	40231	
CONFIG_LOADED	1	
CONFIG_MODIFIED_BY_USER	0	
CONFIG_WRITE	0	
DEVICE_BATTERY_TYPE	4	
DEVICE_INVERTER_TYPE	66	Model of the inverter.

Object	Example value	Description
DEVICE_INV_ENABLED	[1, 0, 0, 0, 0, 0]	
DEVICE_INV_PHASES_ARR	[4, 4, 4, 4, 4, 4]	
DEVICE_INV_SLAVE_ADRESS	[1, 4, 5, 6, 7, 8]	
DEVICE_PM_GRID_ENABLED	1	
DEVICE_PM_HOUSE_ENABLED	0	
DEVICE_PM_TYPE	1	
DEVICE_WB_TYPE	0	
FEATURECODE_ENTERED	0	
FIRMWARE_VERSION	954	Version of the firmware
GENERATION_METER_SN	0	
GRID_CONNECTION_TYPE	2	
GUI_LANG	0	
HEATPUMP_METER_SN	0	
HEAT_CONN_TYPE	2	
INSULATION_RESISTANCE	1000	
INTERFACE_VERSION	1964	
LOGGER_SEVERITY	8	
MAC_ADDRESS_BYTES	[10, 21, 246, 11, 222, 116]	
MASTER_SLAVE_ADDRESSES	[0, 0, 0, 0, 0, 0]	
MASTER_SLAVE_MODE	0	
POWER_METER_SERIAL	0	
PS_ENABLE	0	
PS_HOUR	0	
PS_MINUTE	0	
PS_RESERVOIR	0	
PV_CONFIG	[1, 1]	
PWRCFG_PEAK_PV_POWER	9500.0	Max. PV power of system in watts
SENEC_METER_SN	0	
SETUP_ABS_POWER	0	
SETUP_HV_PHASE	0	
SETUP_NUMBER_WALLBOXES	0	
SETUP_PM_GRID_ADR	1	
SETUP_PM_HOUSE_ADR	2	
SETUP_POWER_RULE	100	
SETUP_PV_INV_IP0	0	
SETUP_PV_INV_IP1	0	

Object	Example value	Description
SETUP_PV_INV_IP2	0	
SETUP_PV_INV_IP3	0	
SETUP_PV_INV_IP4	0	
SETUP_PV_INV_IP5	0	
SETUP_RCR_STEPS	[0, 30, 60, 100]	
SETUP_USED_PHASE	1	
SETUP_USE_ABS_POWER	0	
SETUP_USE_DRM0	0	
SETUP_USE_RCR	0	
SETUP_WALLBOX_SERIAL0		
SETUP_WALLBOX_SERIAL1		
SETUP_WALLBOX_SERIAL2		
SETUP_WALLBOX_SERIAL3		
SG_READY_CURR_MODE	1	
SG_READY_ENABLED	0	
SG_READY_ENABLE_OVERWRITE	0	
SG_READY_EN_MODE1	0	
SG_READY_OVERWRITE_RELAY	[0, 0]	
SG_READY_POWER_COMM	65535	
SG_READY_POWER_PROP	65535	
SG_READY_TIME	720	
TEST_EG_METER	0	
TEST_GENERATION_METER	0	
TEST_HEATPUMP_METER	0	
TEST_SENEC_METER	0	
ZEROMODULE	0	

Category BMS

Information represented by the BMS-Object:

Object	Example value	Description
ALARM_STATUS	[0, 0, 0, 0]	
BATTERY_STATUS	[0, 0, 0, 0]	
BL	[12480, 12480, 12480, 0]	
BMS_READY_FLAG	1	
BMS_STATUS	1	
BMS_STATUS_TIMESTAMP	1689953960	

Object	Example value	Description
CELL_BALANCE_STATUS	[0, 0, 0, 0]	
CELL_TEMPERATURES_MODULE_A	[30, 30, 31, 30, 31, 31]	Temperature of the battery cells of module A. For each cell a sensor is set up.
CELL_TEMPERATURES_MODULE_B	[30, 30, 31, 31, 31, 31]	Temperature of the battery cells of module B. For each cell a sensor is set up.
CELL_TEMPERATURES_MODULE_C	[31, 31, 32, 32, 32, 32]	Temperature of the battery cells of module C. For each cell a sensor is set up.
CELL_TEMPERATURES_MODULE_D	[0, 0, 0, 0, 0, 0]	Temperature of the battery cells of module D. For each cell a sensor is set up.
CELL_VOLTAGES_MODULE_A	[3926, 3926, 3926, 3926, 3926, 3926, 3925, 3923, 3926, 3926, 3926, 3927, 3926, 3927]	
CELL_VOLTAGES_MODULE_B	[3928, 3926, 3926, 3926, 3926, 3927, 3926, 3923, 3927, 3926, 3927, 3927, 3927, 3928]	
CELL_VOLTAGES_MODULE_C	[3929, 3929, 3928, 3928, 3928, 3929, 3928, 3926, 3928, 3928, 3928, 3928, 3928, 3929]	
CELL_VOLTAGES_MODULE_D	[0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0]	
CHARGED_ENERGY	[60293836, 307496975, 267112777, 0]	
CHARGE_CURRENT_LIMIT	[12.0, 12.0, 12.0, 0.0]	
COMMERRCOUNT	0	
CURRENT	[-2.2799999713897705, -2.2899999618530273, -2.2799999713897705, 0.0]	
CYCLES	[27, 29, 14, 0]	Assumption: Number of charging cycles per module
DERATING	0	
DISCHARGED_ENERGY	[290682267, 291850974, 30869157, 0]	
DISCHARGE_CURRENT_LIMIT	[-24.0, -24.0, -24.0, 0.0]	
ERROR	0	
FAULTLINECOUNT	2	
FW	[39637, 39637, 39637, 0]	
HW_EXTENSION	[2, 2, 2, 0]	
HW_MAINBOARD	[3002, 3002, 3002,0]	
MANUFACTURER	2	
MAX_CELL_VOLTAGE	[3927, 3928, 3929, 0]	
MAX_TEMP	320	

Object	Example value	Description
MIN_CELL_VOLTAGE	[3923, 3923, 3926, 0]	
MIN_TEMP	300	
MODULES_CONFIGURED	3	Number of configured modules
MODULE_COUNT	3	Number of battery modules
NOM_CHARGEPOWER_MODULE	625.0	Nominal charging power for each module
NOM_DISCHARGEPOWER_MODULE	1250.0	Nominal discharge power for each module
NR_INSTALLED	3	Number of installed batteries
PROTOCOL	0	
RECOVERLOCKED	0	
SERIAL	["", "", "", ""]	
SN	[44043416, 44043417, 44043418, 0]	
SOC	[83, 83, 83, 0]	
SOH	[99, 99, 99, 0]	
STATUS	[1, 1, 1, 0]	
SYSTEM_SOC	830	
TEMP_MAX	[31, 31, 32, 0]	
TEMP_MIN	[30, 30, 31, 0]	
TF_ERROR	0	
VOLTAGE	[54.96200180053711, 54.970001220703125, 54.99399948120117, 0.0]	
WIZARD_ABORT	1	
WIZARD_CONFIRM	0	
WIZARD_DCCONNECT	0	
WIZARD_START	0	
WIZARD_STATE	0	

Translation of the BMS_STATUS ENUMS

ENUM	Description
1	Warning: cell overvoltage
2	Alarm: cell overvoltage
3	Error: cell overvoltage
4	Warning: cell undervoltage
5	Alarm: cell undervoltage
6	Error: cell undervoltage
7	Alarm: module overvoltage

ENUM	Description
8	Alarm: module undervoltage
9	Error: cell overtemperature
10	Error: cell undertemperature
11	Warning: cell overtemperature charging
12	Alarm: cell overtemperature charging
13	Warning: cell undertemperature charging
14	Alarm: cell undertemperature charging
15	Warning: cell overtemperature discharging
16	Alarm: cell overtemperature discharging
17	Warning: cell undertemperature discharging
18	Alarm: cell undertemperature discharging
19	Warning: charging current
20	Alarm: charging current
21	Warning: discharging current
22	Alarm: discharging current
23	Warning: cells imbalanced
24	Alarm: cells imbalanced
25	Warning: board temperature too high
26	Alarm: board temperature too high
27	Warning: checking temperature difference
28	Alarm: checking temperature difference
29	Warning: checking current difference
30	Alarm: checking current difference
31	Selftest SCP failed

Category BAT1

Information represented by the BAT1-Object:

Object	Example value	Description
CEI_LIMIT	0	
DRM0_ASSERT	0	
ISLAND_ENABLE	1	Assumption: Is the emergency power available?
NSP2_FW	6	
NSP_FW	10	
RESET	0	
SELFTEST_ACT	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
SELFTEST_LIMIT	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	

Object	Example value	Description
SELFTEST_OFF	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
SELFTEST_OVERALL_STATE	5	
SELFTEST_STATE	[0, 0, 0, 0, 0, 0, 0, 0]	
SELFTEST_STEP	["", "", "", "", "", "", "", ""]	
SELFTEST_TIME	[0, 0, 0, 0, 0, 0, 0, 0]	
SERIAL	"783234JD028547840519"	
SPARE_CAPACITY	15	Set reserve capacity for emergency power supply
TRIG_ITALY_SELF	0	
TYPE	4	Battery type

Translation of the Selftest result ENUMs

ENUM	Description
0	Undefined
1	Running
2	Success
3	Failed
4	Never Runned
5	Not Started

Translation of the Selftest step ENUMs

ENUM	Description
0	Upper Voltage Limit L1
1	Lower Voltage Limit L1
2	Upper Freq Limit L1
3	Lower Freq Limit L1
4	Upper 10 Min Avg Limit L1
5	Ext Upper Freq Limit L1
6	Ext Lower Freq Limit L1
7	Lower Voltage Limit 2 L1

Category BAT1OBJ1

Information represented by the BAT1OBJ1-Object:

Object	Example value	Description
COMM	0	
I_DC	-6.744999885559082	
P	0	
Q	0	

Object	Example value	Description
S	0	
SW_VERSION	51380244	
SW_VERSION2	67305482	
SW_VERSION3	84148230	
TEMP1	42	
TEMP2	49	
TEMP3	0	
TEMP4	0	
TEMP5	0	
U_DC	54.85300064086914	

Category BAT1OBJ2

Information represented by the BAT1OBJ2-Object: "BAT1OBJ2":{ "OBJECT_NOT_FOUND":"" },

Category BAT1OBJ3

Information represented by the BAT1OBJ3-Object: "BAT1OBJ3":{ "OBJECT_NOT_FOUND":"" },

Category BAT1OBJ4

Information represented by the BAT1OBJ4-Object: "BAT1OBJ4":{ "OBJECT_NOT_FOUND":"" },

Category PWR_UNIT

Information represented by the PWR_UNIT-Object:

Object	Example value	Description
ADRESS	[0, 0, 0, 0, 0, 0]	
CONNPWR	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
CONNPWR_1	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
CONNPWR_2	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
CONNPWR_3	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
CURRENTTEMP_MAX	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
CURRENTTEMP_MAX_HW	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
CURRENTTEMP_MIN	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
CURRENTTEMP_MIN_HW	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
ENFLURI	[0, 0, 0, 0, 0, 0]	
FW_VER	[0, 0, 0, 0, 0, 0]	
HW_REV	[0, 0, 0, 0, 0, 0]	
POWER	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
POWER_L1	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
POWER_L2	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	

Object	Example value	Description
POWER_L3	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
PU_MISSING	0	
REQ_POWER	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
SERIAL	["", "", "", "", "", ""]	
STATUS	[0, 1, 2, 3, 4, 5]	
TEMPMAX	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
TEMPMIN	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
TEMPTARGET	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
TEMP_COUNT	[0, 0, 0, 0, 0, 0]	
TEMP_LIMIT_LOWER	0.0	
TEMP_LIMIT_UPPER	100.0	
TYPE	[0, 0, 0, 0, 0, 0]	
WATERVOL	[0, 0, 0, 0, 0, 0]	

Translation of the PWR_UNIT TYPE ENUM

ENUM	Description
0	N/A
1	Solarinvert SHKW
2	SENEC.Heat

Category PV1

Information represented by the PV1-Object:

Object	Example value	Description
ERROR_STATE_INT	[0, 0]	
INTERNAL_INV_ERROR_TEXT	["", ""]	
INTERNAL_INV_ERR_STATE_VALID	[1, 0]	
INTERNAL_INV_STATE	[2, 5]	
INTERNAL_MD_AVAIL	[1, 0]	
INTERNAL_MD_MANUFACTURER	["Senec", ""]	Manufacturer
INTERNAL_MD_MODEL	["V3 LV", ""]	Currently used model
INTERNAL_MD_SERIAL	["7a7553H304H544250424", ""]	
INTERNAL_MD_VERSION	["HMI: 3.16.20 PU: 4.3.10 BDC: 5.4.6", ""]	
INTERNAL_PV_AVAIL	1	
INV_MODEL	["", "", "st_END_OF_ARRAY"]	
INV_SERIAL	["", "","st_END_OF_ARRAY"]	

Object	Example value	Description
INV_VERSIONS	["HMI: 3.16.20 PU: 4.3.10", "","st_END_OF_ARRAY"]	
MPP_AVAIL	2	Number of available MPPs
MPP_CUR	[0.0, 0.0, 0.0]	
MPP_POWER	[0.0, 0.0, 0.0]	Power for each MPP in watts. For each MPP a sensor is set up.
MPP_VOL	[60.202003479003906, 66.80500030517578, 0.0]	Voltage of each MPP
POWER_RATIO	100.0	
POWER_RATIO_L1	100.0	
POWER_RATIO_L2	100.0	
POWER_RATIO_L3	100.0	
PV_MISSING	0	
P_TOTAL	0.0	
STATE_INT	[272, 0]	
TYPE	66	

Category BMS_PARA

Information represented by the BMS_PARA-Object:

Object	Example value	Description
FORCE_BMS_ERROR	0	
FORCE_OP_MODE	0	
FULL_CELL_VOLTAGE_MV	4069	
MAX_BATTERY_TEMP_LIMIT_DEG	45	
MAX_MODULE_CHARGE_CURRENT_LIMIT_A	12	
MAX_MODULE_DISCHARGE_CURRENT_LIMIT_A	65512	
OPERATIONAL_MODE	2	
USE_ROA_PARAMETER	0	

Category CASC

Information represented by the CASC-Object:

Object	Example value	Description
BATPOWERSUM	-376.0310363769531	
POWER	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
PVGEN	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	
PVMASTER	0.0	
SOC	[100.0, 100.0, 100.0, 100.0, 100.0, 100.0]	
STATE	[0, 0, 0, 0, 0, 0]	

Object	Example value	Description
TARGET	[0.0, 0.0, 0.0, 0.0, 0.0, 0.0]	

Category DISPLAY

Returns an empty object

Category FACTORY

Information represented by the FACTORY-Object:

Object	Example value	Description
BAT_TYPE	4	Battery type
CELL_TYPE	5	Cell type
COUNTRY	0	
DESIGN_CAPACITY	7500.0	Capacity of available batteries
DEVICE_ID	"252586611325832422099183 4"	
EPA_GRID_FILTER	0	
FAC_SANITY	1	
MAX_CHARGE_POWER_DC	1875.0	Sum of power the available batteries can be charged
MAX_DISCHARGE_POWER_DC	3750.0	Sum of power the available batteries can be discharged
PM_TYPE	1	
SYS_TYPE	17	

Translation of the FACTORY BAT_TYPE ENUM

ENUM	Description
0	Studer Xtender
1	SenecBatt
2	Senec.Inverter V2
3	SENEC.Inverter V2.1
4	SENEC.Inverter V3 LV

Category GRIDCONFIG

Information represented by the GRIDCONFIG-Object:

Object	Example value	Description
PWRCFG_COS_POINT1	1	
PWRCFG_COS_POINT3	0.95	
PWRCFG_COS_POINT_2A	1	
PWRCFG_COS_POINT_2B	50	
PWRCFG_USE_MAX_PWR_SKEW	1	

Object	Example value	Description
VDECOSPHITIME	10	
VDEFIXEDFAC	0.9	
VDEOVERFREQDROOP	5	
VDEOVERFREQLIMIT	50.2	
VDEPT1RESPONSETIME	0	
VDERECOVERTIME	10	
VDETARGETTY	1	
VDEUNDERFREQDROOP	2	
VDE_FREQDROPPROT	47.5	
VDE_FREQDROPPROTDELAY	0.1	
VDE_FREQRISEPROT	51.5	
VDE_FREQRISEPROTDELAY	0.1	
VDE_UNDERFREQLIMIT	49.8	
VDE_VOLTDROPPROT	45	
VDE_VOLTDROPPROTAVG	80	
VDE_VOLTDROPPROTAVGDELAY	3	
VDE_VOLTDROPPROTDELAY	0.3	
VDE_VOLTRISEPROT	125	
VDE_VOLTRISEPROTAVG	110	
VDE_VOLTRISEPROTAVGDELAY	0.1	
VDE_VOLTRISEPROTDELAY	0.1	

Category PM1

Information represented by the PM1-Object:

Object	Example value	Description
MB_SL2MA_CONN	0	
MB_SLAVES_COUNT	0	
PWR_METERS_MISSING	0	
TYPE	1	

Category PM1OBJ1

Information represented by the PM1OBJ1-Object - ENFLURI 1:

Object	Example value	Description
ADR	1	
ENABLED	1	
FREQ	50.05999755859375	Frequency of the power grid

Object	Example value	Description
I_AC	[1.159999966621399, 0.35999998450279236, 1.0]	Current in amps for each phase. For each phase a single sensor is set up.
P_AC	[-234.3199920654297, 49.84000015258789, 174.45999145507812]	Current power (w) of each phase. For each phase a single sensor is set up.
P_TOTAL	-10.029999732971191	
U_AC	[229.40000915527344, 230.3000030517578, 228.40000915527344]	Current voltage per phase. For each phase a single sensor is set up.

Category PM1OBJ2

Information represented by the PM1OBJ2-Object - ENFLURI 2:

Object	Example value	Description
ADR	2	
ENABLED	0	
FREQ	0.0	
I_AC	[0.0, 0.0, 0.0]	
P_AC	[0.0, 0.0, 0.0]	
P_TOTAL	0.0	
U_AC	[0.0, 0.0, 0.0]	

Category RTC

Information represented by the RTC-Object:

Object	Example value	Description
TIMESTAMP_MS	1314036527	
UTC_OFFSET	120	
WEB_TIME	1691275183	

Category SELFTEST_RESULTS

Information represented by the SELFTEST_RESULTS-Object:

Object	Example value	Description
DC_COIL	Test passed	
INIT_BATTERY_MODULES	Test passed	
INSULATION	Test passed	
INTERRUPT	No Interrupt	
IPU	Test not initialized	

Category SOCKETS

Information represented by the SOCKETS-Object:

Object	Example value	Description
ALREADY_SWITCHED	[0, 0]	
ENABLE	[0, 0]	
FORCE_ON	[0, 0]	
LOWER_LIMIT	[0, 0]	
NUMBER_OF_SOCKETS	2	
POWER_ON	[0, 0]	
POWER_ON_TIME	[0, 0]	
PRIORITY	[0, 0]	
RESET_SWITCHED	0	
SWITCH_ON_HOUR	[0, 0]	
SWITCH_ON_MINUTE	[0, 0]	
TIME_LIMIT	[0, 0]	
TIME_REM	[0, 0]	
UPPER_LIMIT	[0, 0]	
USE_TIME	[0, 0]	

Category "STATISTIC"

Returns an empty object.

Category STECA

Information represented by the STECA-Object:

Object	Example value	Description
AU2020_VERSION_MISMATCH	0	
BAT	1	
BDC_STATE	[262144, 0, 1073741824]	
ERROR	0	
ERRORTEXT	""	
ISLAND	1	
NUM_PV_CONFIG_POSSIBLE	10	
PV	1	
PVSS	4	
PV_CONFIG_POSSIBLE	[1, 1, 1, 2, 16, 1, 1, 16, 16, 16]	
PV_INPUTS	2	Number of MPPs provided
RELAYS	15	
STARTUP	272	See tranlation of ENUMS below - 272=Run Grid
STARTUP_ADD	4294967295	

Translation of the ENUMS for the STARTUP Variable

ENUM	Description
0	StabilizeMcuSupply
16	StartHighSidePwm
32	StartAuxSupply
48	StartMonitoring
64	ThermalManagement
80	StartProtection
88	CheckIslanding
96	DegaussRCD
112	GetAcOffset
128	SwitchOnRelaisSupply
136	CheckStrings
140	EstablishLink
141	BlackStart
144	TestAcRelais
160	TestDcRelais
176	SwitchOnDcRelais
184	CheckDcShortcircuitAndPolarity
192	GetDcOffset
208	TestRcd
224	IsolationCheck
228	SwitchOnENS
232	ReestablishLink
236	RecheckIslanding
237	EstablishIslandingLink
238	ConfirmIslanding
240	WaitEnsClearance
256	EstablishAcVoltage
264	RunIslanding
272	RunGrid
280	CheckShortFault
288	SafeState
304	Sleep
312	SleepAfterIslanding
320	ShutdownForSleep
336	SystemReset
352	WaitForReset

Category SYS_UPDATE

Information represented by the SYS_UPDATE-Object:

Object	Example value	Description
FSM_STATE	1	
MISC	[0, 0, 0, 0, 0, 0]	
NPU_IMAGE_VERSION	2011	
NPU_VER	9	
UPDATE_AVAILABLE	0	
USER_REBOOT_DEVICE	0	
USER_REQ_UPDATE	0	

Category TEMPMEASURE

Information represented by the TEMPMEASURE-Object:

Object	Example value	Description
BATTERY_TEMP	32.0	Temperature of the batteries in °C
CASE_TEMP	39.308067321777344	Temperature of the case in °C
MCU_TEMP	49.744564056396484	Temperature of the MCU in °C
TEMP_DATA_COLLECTED	1	

Category TEST

Returns an empty object.

Category UPDATE

Returns an empty object.

Category WALLBOX

Information represented by the WALLBOX-Object:

Object	Example value	Description
ADDITIONAL_ERROR	[0, 0, 0, 0]	
ALLOW_INTERCHARGE	0	
APPARENT_CHARGING_POWER	[0.0, 0.0, 0.0, 0.0]	
BUS_ADR	[1, 2, 3, 4]	
CS_ENABLED	[0, 0, 0, 0]	
DETECTION_MODE	0	
EV_CONNECTED	[0, 0, 0, 0]	
HW_TYPE	[0, 0, 0, 0]	
L1_CHARGING_CURRENT	[0.0, 0.0, 0.0, 0.0]	
L1_USED	[0, 0, 0, 0]	
L2_CHARGING_CURRENT	[0.0, 0.0, 0.0, 0.0]	

Object	Example value	Description
L2_USED	[0, 0, 0, 0]	
L3_CHARGING_CURRENT	[0.0, 0.0, 0.0, 0.0]	
L3_USED	[0, 0, 0, 0]	
LOAD_IMBALANCE_DETECTED	[0, 0, 0, 0]	
LOAD_IMBALANCE_ENABLED	[0, 0, 0, 0]	
MAJOR_REV	[0, 0, 0, 0]	
MAX_CHARGING_CURRENT_DEFAULT	[0.0, 0.0, 0.0, 0.0]	
MAX_CHARGING_CURRENT_IC	[0.0, 0.0, 0.0, 0.0]	
MAX_CHARGING_CURRENT_ICMAX	[0.0, 0.0, 0.0, 0.0]	
MAX_CHARGING_CURRENT_RATED	[0.0, 0.0, 0.0, 0.0]	
MAX_PHASE_CURRENT_BY_GRID	0.0	
MAX_TOTAL_CURRENT_BY_GRID	0.0	
METER_ENABLED	[0, 0, 0, 0]	
METHOD_EN1	[0, 0, 0, 0]	
MINOR_REV	[0, 0, 0, 0]	
MIN_CHARGING_CURRENT	[0.0, 0.0, 0.0, 0.0]	
PHASES_USED	[0, 0, 0, 0]	
PROHIBIT_USAGE	[0, 0, 0, 0]	
SAP_NUMBER	["", "", "", ""]	
SERIAL_NUMBER	["", "", "", ""]	
SERIAL_NUMBER_INTERNAL	["", "", "", ""]	
SET_ICMAX	[0.0, 0.0, 0.0, 0.0]	
SET_IDEFAULT	[0.0, 0.0, 0.0, 0.0]	
SMART_CHARGE_ACTIVE	[0, 0, 0, 0]	
SOCKET_ENABLED	[0, 0, 0, 0]	
STATE	[0, 0, 0, 0]	
UID	[0, 0, 0, 0]	
UTMP	[0, 0, 0, 0]	

Translation of Wallbox STATE ENUM

ENUM	Description
0x00	invalid state
0xA1	not connected
0xA2	not connected
0xB1	connected
0xB2	ready
0xC2	charging

ENUM	Description
0xC3	charging with reduced power (high temperature)
0xC4	charging with reduced power (unbalanced load limitation)
0xE0	deactivated (enabling contact)
0xF1	contact error
0xF2	internal error
0xF3	fault current detected
0xF4	EV charger communication error
0xF5	locking error
0xF6	cable error
0xF7	vehicle overtemperature
0xF8	vehicle communication error
0xF9	power supply error
0xFA	temperature too high
0xFB	contact error

Category CURRENT_IMBALANCE_CONTROL

Information represented by the Current_IMBALANCE_CONTROL-Object:

Object	Example value	Description
THRESHOLD_mA	8000	Threadshold

Category BMZ_CURRENT_LIMITS

Information represented by the BMZ_CURRENT_LIMITS-Object:

Object	Example value	Description
MIN_CURRENT_LIMIT_A	65512	
MAX_CURRENT_LIMIT_A	12	

Category CELL_DEVIATION_ROC

Information represented by the CELL_DEVIATION_ROC-Object:

Object	Example value	Description
SKIP_WAITING	0	

Category SENEC_IO_INPUT

Information represented by the SENEC_IO_INPUT-Object:

Object	Example value	Description
STATUS_DC_SWITCH_IPU_V5	1	
FAULTLINE_DELAYED	0	
FAULTLINE	0	

Object	Example value	Description
STATUS_AC_SWITCH_IPU_V3	0	
ISOGUARD_STATUS	1	
DRY_CONTACT_IN_IPU_V5	1	
DC_HK_STATUS_IPU_V5	0	
POWER_STATUS	1	
HID3_IPU_V5	0	
HID2_IPU_V5	1	
HID1	1	
HID0	0	
RCD_RMS_IPU_V3	1	
RCD_ERROR_IPU_V3	1	
RCD_DC_IPU_V3	0	
AC_ERROR_IPU_V3	1	

Category SENEC_IO_OUTPUT

Information represented by the SENEC_IO_OUTPUT-Object:

Object	Example value	Description
BAT_MODULE_ENABLE_SAMSUNG_IPU_V5	0	1 =Samsung Modules are used
BAT_MODULE_ENABLE_BMZ	1	1 = BMZ Modules are used
KILLSWITCH	0	
Relay_4	0	
Relay_3	0	
Relay_2	0	
Relay_1	0	
ISOGUARD_ENABLE	0	
DC_SWITCH	1	
AC_SWITCH_IPU_V3	0	
DRY_CONTACT_OUT_IPU_V5	1	
RCD_RESET_IPU_V3	0	
RCD_TEST_IPU_V3	1	

Category IPU

Information represented by the IPU-Object:

Object	Example value	Description
VERSION	2	

Category FAN_TEST

Information represented by the FAN_TEST-Object:

Object	Example value	Description
INV_LV	0	
INV_HV	0	

Category FAN_SPEED

Information represented by the FAN_SPEED-Object:

Object	Example value	Description
INV_LV	0	
INV_HV	0	

Category V_STECA

Information represented by the V_STECA-Object:

Object	Example value	Description
percent#v	0.0	
percent#vf	0.0	
percent#f	0	

Web API

The following Information can be accessed via the Web-API (mein-senec.de).

Peak Shaving

Read/Get Information

When logged in, call the following URL via GET: `https://mein-senec.de/endkunde/api/peakshaving/getSettings?anlageNummer=0`

Response

```
{
    "einspeisebegrenzungKwpInPercent": 100, #export limit in kwh in percent
    "peakShavingMode": "DEACTIVATED", #Current mode DEACTIVATED, MANUAL, AUTO
    "peakShavingCapacityLimitInPercent": 0, #Battery capacity limit in percent
    "peakShavingLocalEndTime": [
        0,
        0
    ],
    "bearbeitungsdatum": 1665062808000,
    "bearbeiter": {
        "id": 111111,
        "geloescht": false,
        "userRole": "STUB",
        "aktiv": false
    },
    "valid": true,
    "peakShavingEndDate": 1696723200000 #END time of peak shaving
}
```

URL to set Settings

To set the changed configuration call ("GET") the following URL and set the respective query string parameter:
`https://mein-senec.de/endkunde/api/peakshaving/saveSettings?anlageNummer=0&mode=AUTO&capacityLimit=0&endzeit=1697414400000`

Definition of variables

Mode ("peakShavingMode" in response to read the current data, "mode" in request to save changes)

- Deactivated = no peak shaving, only dynamic export limit. Defined as "DEACTIVATED" in get and save Settings
- Manual = manual peak shaving parameter assignment. Defined as "MANUAL" in get and save Settings
- Automatic = forecast-based peak shaving parameter assignment (BETA). Defined as "AUTO" in get and save Settings

Capacity limit ("peakShavingCapacityLimitInPercent" in response to read the current data,"capacityLimit" in request to save changes)

- Temporarily limits the capacity of the battery storage, so that the remaining capacity can be used for potential losses due to the export limit.

End ("peakShavingEndDate" in response to read the current data, "endzeit" in request to save changes)

- Time of the day on which the capacity limitation should switch off again.

Test your code modification

This custom component is based on integration_blueprint template.

It comes with development environment in a container, easy to launch if you use Visual Studio Code. With this container you will have a stand alone Home Assistant instance running and already configured with the included `configuration.yaml` file.

Inside the devcontainer run "scripts/develop" to start HA and test out your new integration. Use "Home Assistant: Attach Local" to attach debugger.