sonnenBatterie API (1.0.0)

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The sonnenBatterie API allows to remote control a sonnenBatterie.

Most API endpoints require an authentication token. This token is available in the sonnenBatterie Dashboard ('Software-Integration'). Unproteced endpoints are marked below.

Example request:

```
curl --header 'Auth-Token: TOKEN' http://SYSTEM-IP/api/v2/latestdata
```

Read API

Endpoints for reading data.

Get a single configuration

Get a single configuration

Gets the value of a given configuration. The allowed configurations are:

- CM_MarketingModuleCapacity
- CN_CascadingRole
- DE_Software
- EM_OperatingMode
- EM_Prognosis_Charging
- EM_RE_ENABLE_MICROGRID
- EM_ToU_Schedule
- EM_USER_INPUT_TIME_ONE
- EM_USER_INPUT_TIME_THREE
- EM_USER_INPUT_TIME_TWO
- EM_USOC
- EM_US_CHP_Max_SOC
- EM_US_CHP_Min_SOC
- EM_US_GENRATOR_TYPE
- EM_US_GEN_POWER_SET_POINT
- EM_US_RE_ENABLE_MICROGRID
- EM_US_USER_INPUT_TIME_ONE
- EM_US_USER_INPUT_TIME_THREE
- EM_US_USER_INPUT_TIME_TWO
- IC_BatteryModules
- IC_InverterMaxPower_w
- NVM_PfcFixedCosPhi
- NVM_PfcIsFixedCosPhiActive
- NVM_PfcIsFixedCosPhiLagging
- SH_HeaterOperatingMode
- SH_HeaterTemperatureMax

- SH_HeaterTemperatureMin

AUTHORIZATIONS: ❯   *API-Token*

PATH PARAMETERS

name required	string The name of a configuration entry

Responses

❯ **200**

Success

❯ **401**

Request is unauthorized. The authentication token is invalid or missing.

— **403**

Trying to read an unexpected or restricted configuration

GET	`/api/v2/configurations/{name}`	⌄

Response samples

[200] [401]

Content type
application/json

                                                      Copy

```
{
    "EM_OperatingMode": "2"
}
```

Get all configurations

Get all configurations

Gets the values of all allowed configurations. The allowed configurations are:

- CM_MarketingModuleCapacity
- CN_CascadingRole
- DE_Software
- EM_OperatingMode
- EM_Prognosis_Charging

- EM_RE_ENABLE_MICROGRID
- EM_ToU_Schedule
- EM_USER_INPUT_TIME_ONE
- EM_USER_INPUT_TIME_THREE
- EM_USER_INPUT_TIME_TWO
- EM_USOC
- EM_US_CHP_Max_SOC
- EM_US_CHP_Min_SOC
- EM_US_GENRATOR_TYPE
- EM_US_GEN_POWER_SET_POINT
- EM_US_RE_ENABLE_MICROGRID
- EM_US_USER_INPUT_TIME_ONE
- EM_US_USER_INPUT_TIME_THREE
- EM_US_USER_INPUT_TIME_TWO
- IC_BatteryModules
- IC_InverterMaxPower_w
- NVM_PfcFixedCosPhi
- NVM_PfcIsFixedCosPhiActive
- NVM_PfcIsFixedCosPhiLagging
- SH_HeaterOperatingMode
- SH_HeaterTemperatureMax
- SH_HeaterTemperatureMin

AUTHORIZATIONS: ❯   *API-Token*

Responses

❯ **200**

Get all Configurations

❯ **401**

Request is unauthorized. The authentication token is invalid or missing.

GET `/api/v2/configurations`   ⌄

Response samples

[200] [401]

Content type
application/json

Copy

```json
{
    "CM_MarketingModuleCapacity": "5500",
    "CN_CascadingRole": "secondary",
    "DE_Software": "1.8.3",
    "EM_CHP_Max_SOC": "90",
    "EM_CHP_Min_SOC": null,
    "EM_OperatingMode": "1",
```

```
    "EM_Prognosis_Charging": "0",
    "EM_RE_ENABLE_MICROGRID": "0",
    "EM_ToU_Schedule": "[{\"grid\":\"1\",\"start\":\"07:00\",\"stop\":\"08:00\",\"charge\":\"07:31\"}]",
    "EM_USER_INPUT_TIME_ONE": "00:00",
    "EM_USER_INPUT_TIME_TWO": "00:00",
    "EM_USOC": "0",
    "EM_US_GENRATOR_TYPE": "automatic",
    "EM_US_GEN_POWER_SET_POINT": "0",
    "IC_BatteryModules": "4",
    "IC_InverterMaxPower_w": "3300",
    "NVM_PfcFixedCosPhi": "1",
    "NVM_PfcIsFixedCosPhiActive": "0",
    "NVM_PfcIsFixedCosPhiLagging": "1",
    "SH_HeaterOperatingMode": "0",
    "SH_HeaterTemperatureMax": "65",
    "SH_HeaterTemperatureMin": "42"
}
```

Get battery module data

Get battery module data

Variable	Example Value	Unit	Description	Data type
balancechargerequest	0	N/A	Module request for balance charge, 0 for false, 1 for true	Boolean
chargecurrentlimit	38.0	A	Module charge current limit	Float
cyclecount	344	N/A	Number of charge/discharge cycles	Integer
dischargecurrentlimit	38.0	A	Module discharge current limit	Float
fullchargecapacity	96.922	Ah	Fullcharge capacity	Float
maximumcelltemperature	28.05	ºC	Max cell temperature	Float
maximumcellvoltage	3.327	V	Max cell voltage	Float
maximumcellvoltagenum	0	-	-	Enum
maximummodulecurrent	-0.01	A	Max module DC current	Float
maximummoduledcvoltage	106.27	V	Max module DC voltage	Float
maximummoduletemperature	-273.15	ºC	Max module DC temperature	Float
minimumcelltemperature	22.05	ºC	Min cell temperature	Float
minimumcellvoltage	3.293	V	Min cell voltage	Float
minimumcellvoltagenum	0	-	-	Enum
minimummodulecurrent	-0.05	A	Min module current	Float
minimummoduledcvoltage	105.528	V	Min module voltage	Float
minimummoduletemperature	-273.15	ºC	Min module temperature	Float
relativestateofcharge	79.0	%, percentage	Relative state of charge	Float

Variable	Example Value	Unit	Description	Data type
remainingcapacity	79.941	Ah	Remaining capacity in Ah	Float
systemalarm	0	N/A	System alarm, 0 for false, 1 for true	Boolean
systemcurrent	0.0	A	System current	Float
systemdcvoltage	211.797	V	System battery voltage	Float
systemstatus	49	N/A	System status	Integer
systemtime	0	N/A	System time	Boolean
systemwarning	0	N/A	System warning, 0 for false, 1 for true	Boolean

AUTHORIZATIONS: >   *API-Token*

Responses

> **200**

Battery module measurements

> **401**

Request is unauthorized. The authentication token is invalid or missing.

GET	`/api/v2/battery`	⌄

Response samples

[200] [401]

Content type
application/json

Copy

```
{
    "chargecurrentlimit": 0,
    "cyclecount": 127,
    "dischargecurrentlimit": 29.6,
    "fullchargecapacity": 40.359,
    "maximumcelltemperature": 21.15,
    "maximumcellvoltage": 3.333,
    "maximummodulecurrent": 0.001,
    "maximummoduledcvoltage": 53.307,
    "minimumcelltemperature": 20.35,
    "minimumcellvoltage": 3.331,
    "minimummodulecurrent": 0.001,
    "minimummoduledcvoltage": 53.307,
    "relativestateofcharge": 100,
    "remainingcapacity": 40.272,
```

```
    "systemalarm": 0,
    "systemcurrent": 0.001,
    "systemdcvoltage": 53.307,
    "systemstatus": 49,
    "systemtime": 20635588,
    "systemwarning": 0
}
```

Get inverter data

Get inverter data

Variable	Example Value	Unit	Description	Data type
fac	49.947	Hz, hertz	AC frequency in hertz	Float
iac_total	0.41	A, ampere	AC current	Float
ibat	0	A, ampere	Battery current	Float
ipv	0	A, ampere	PV current	Float
pac_microgrid	0	W, watt	AC microgrid power: greater than 0 means discharging, less than 0 means charging	Float
pac_total	-4.126	W, watt	AC power: greater than 0 means discharging, less than 0 means charging	Float
pbat	0	W, watt	DC Power	Float
phi	0	N/A	Power factor cos φ	Float
ppv	0	W, watt	PV production in watts	Float
sac_total	97.124	VA, volt-ampere	Output of apparent power in VA	Float
tmax	32.351	°C, degrees Celsius	Inverter Temperature	Float
uac	237.764	V, volt	AC voltage in volts	Float
ubat	212.0	V, volt	Battery voltage in volts	Float
upv	0	V, volt	PV voltage in volts	Float

AUTHORIZATIONS: ❯   API-Token
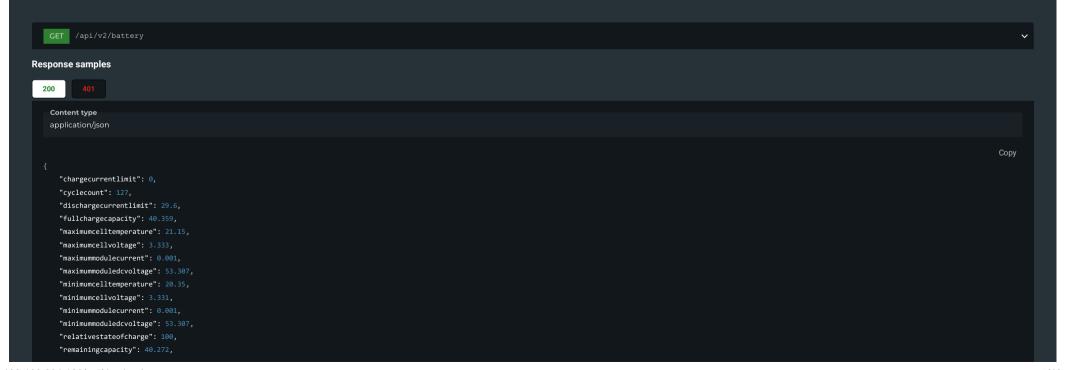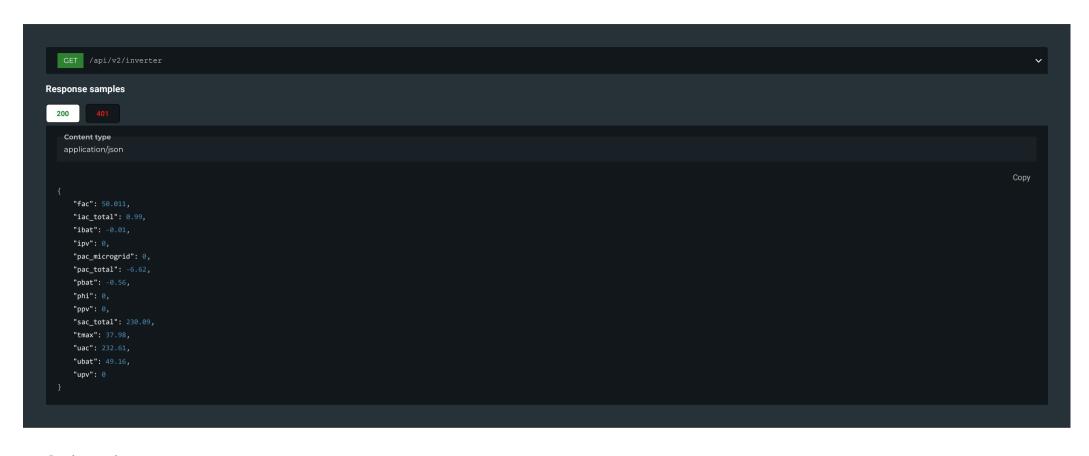
Responses

> **200**

Inverter measurements

> **401**

Request is unauthorized. The authentication token is invalid or missing.

```
GET  /api/v2/inverter                                                    ∨
```

Response samples

`200` `401`

Content type
application/json

Copy

```
{
    "fac": 50.011,
    "iac_total": 0.99,
    "ibat": -0.01,
    "ipv": 0,
    "pac_microgrid": 0,
    "pac_total": -6.62,
    "pbat": -0.56,
    "phi": 0,
    "ppv": 0,
    "sac_total": 230.09,
    "tmax": 37.98,
    "uac": 232.61,
    "ubat": 49.16,
    "upv": 0
}
```

Get latest data

Get latest data

Supported since firmware version 1.13.2

AUTHORIZATIONS: ❯   *API-Token*

Responses

❯ **200**

Latest data

❯ **401**

Request is unauthorized. The authentication token is invalid or missing.

```
GET    /api/v2/latestdata                                                      ⌄
```

Response samples

200   401

Content type
application/json

Copy   Expand all   Collapse all

```
{
    "Consumption_W": 0,
    "FullChargeCapacity": 0,
    "GridFeedIn_W": 0,
    "Pac_total_W": 0,
    "Production_W": 0,
    "RSOC": 0,
    "SetPoint_W": 0,
    "Timestamp": "2019-09-19 15:07:19",
    "USOC": 0,
    "UTC_Offet": 2,
  - "ic_status": {
    + "DC Shutdown Reason": { … },
    + "Eclipse Led": { … },
    + "Flat Status": { … },
    + "MISC Status Bits": { … },
    + "Microgrid Status": { … },
    + "Setpoint Priority": { … },
    + "System Validation": { … },
      "nrbatterymodules": 0,
      "secondssincefullcharge": 0,
      "statebms": "not ready",
      "statecorecontrolmodule": "config",
      "stateinverter": "not ready",
      "timestamp": "Thu Jan 1 01:00:00 1970"
    }
}
```

Get power-meter measurements

Get power-meter measurements

Supported since firmware version 1.13.2

AUTHORIZATIONS: ❯   API-Token

Responses

> **200**

Power-meter data

> **401**

Request is unauthorized. The authentication token is invalid or missing.

> **500**

Internal server error has occurred. Please read the details in the response body.

`GET` `/api/v2/powermeter`

Response samples

`200` `401` `500`

Content type
application/json

Copy   Expand all   Collapse all

```
[
  - {
        "a_l1": 0,
        "a_l2": 0,
        "a_l3": 0,
        "channel": 1,
        "deviceid": 4,
        "direction": "production",
        "error": -1,
        "kwh_exported": 0,
        "kwh_imported": 0,
        "v_l1_l2": 0,
        "v_l1_n": 0,
        "v_l2_l3": 0,
        "v_l2_n": 0,
        "v_l3_l1": 0,
        "v_l3_n": 0,
        "va_total": 0,
        "var_total": 0,
        "w_l1": 0,
        "w_l2": 0,
        "w_l3": 0,
        "w_total": 0
    },
```

```
    - {
        "a_l1": 0,
        "a_l2": 0,
        "a_l3": 0,
        "channel": 2,
        "deviceid": 4,
        "direction": "consumption",
        "error": -1,
        "kwh_exported": 0,
        "kwh_imported": 0,
        "v_l1_l2": 0,
        "v_l1_n": 0,
        "v_l2_l3": 0,
        "v_l2_n": 0,
        "v_l3_l1": 0,
        "v_l3_n": 0,
        "va_total": 0,
        "var_total": 0,
        "w_l1": 0,
        "w_l2": 0,
        "w_l3": 0,
        "w_total": 0
    }
]
```

Get status data

Get status data

This endpoint does not require an authentication token.

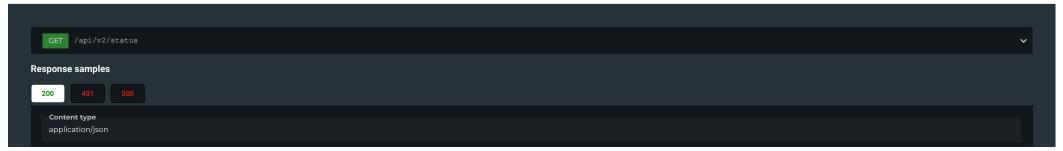| Variable	Example Value	Unit	Description	Data type
Apparent_output	226	VA, volt-ampere	All AC output of apparent power in VA	Integer
BackupBuffer	0	%, percentage	Backup-buffer in percentage that is set on the system.	Integer
BatteryCharging	false	-	Boolean that indicates the charge status. True if charging	Boolean
BatteryDischarging	false	-	Boolean that indicates the discharge status. True if discharging	Boolean
Consumption_Avg	223	W, watt	House consumption in watts, average over the last 60s	Integer
Consumption_W	232	W, watt	House consumption in watts, direct measurement	Integer
Fac	49.999000549316400	Hz, hertz	AC frequency in hertz	Float
FlowConsumptionBattery	false	-	Boolean that indicates the energy flow at the installation site. True if battery feeds the consumption	Boolean
FlowConsumptionGrid	true	-	Boolean that indicates the energy flow at the installation site. True if grid feeds the consumption	Boolean
FlowConsumptionProduction	true	-	Boolean that indicates the energy flow at the installation site. True if production feeds the consumption	Boolean
FlowGridBattery	false	-	Boolean that indicates the energy flow at the installation site. True if battery is charging from grid	Boolean
FlowProductionBattery	false	-	Boolean that indicates the energy flow at the installation site. True if production is charging the battery	Boolean
FlowProductionGrid	false	-	Boolean that indicates the energy flow at the installation site. True if production feeds into the grid	Boolean

Variable	Example Value	Unit	Description	Data type
GridFeedIn_W	-208	W, watt	Grid Feed in negative is consumption and positive is feed in	Integer
IsSystemInstalled	1	-	System is installed or not	Integer
OperatingMode	2	-	Operating mode that is set on the system: 1: Manual charging or discharging via API; 2: Automatic Self Consumption. Default.	Integer
Pac_total_W	-5	W, watt	AC Power greater than ZERO is discharging Inverter AC Power less than ZERO is charging	Signed Integer
Production_W	28	W, watt	PV production in watts	Integer
RSOC	4	%, percentage	Relative state of charge	Integer
RemainingCapacity_W	674	Wh	Remaining capacity based on RSOC	Integer
Sac1	75	VA, volt-ampere	Output of apparent power in VA on Phase 1	Integer
Sac2	75	VA, volt-ampere	Output of apparent power in VA on Phase 2	Integer
Sac3	76	VA, volt-ampere	Output of apparent power in VA on Phase 3	Integer
SystemStatus	OnGrid	-	String that indicates if the system is connected to the grid ("OnGrid") or disconnected ("OffGrid")	String
Timestamp	2020-12-10 11:26:01	-	Local system time	String
USOC	0	%, percentage	User state of charge	Integer
Uac	230	V, volt	AC voltage in volts	Integer
Ubat	50	V, volt	Battery voltage in volts	Integer
dischargeNotAllowed	false	-	Boolean that indicates the discharge status. True if no discharge allowed, based on battery maintenance	Boolean
generator_autostart	false	-	Boolean that indicates the autostart setting of the generator.	Boolean

AUTHORIZATIONS: >   API-Token

Responses

> **200**

> **401**

Request is unauthorized. The authentication token is invalid or missing.

> **500**

Internal server error has occurred. Please read the details in the response body.

GET   /api/v2/status   ⌄

Response samples

200   401   500

Content type
application/json

```
                                                                                     Copy
{
    "Apparent_output": 96,
    "BackupBuffer": "0",
    "BatteryCharging": false,
    "BatteryDischarging": false,
    "Consumption_W": 0,
    "Fac": 50.0239143371582,
    "FlowConsumptionBattery": false,
    "FlowConsumptionGrid": false,
    "FlowConsumptionProduction": false,
    "FlowGridBattery": false,
    "FlowProductionBattery": false,
    "FlowProductionGrid": false,
    "GridFeedIn_W": -3,
    "IsSystemInstalled": 1,
    "OperatingMode": "2",
    "Pac_total_W": 7,
    "Production_W": 0,
    "RSOC": 21,
    "Sac1": 96,
    "Sac2": null,
    "Sac3": null,
    "SystemStatus": "OnGrid",
    "Timestamp": "2020-03-26 17:10:06",
    "USOC": 12,
    "Uac": 238,
    "Ubat": 209,
    "dischargeNotAllowed": false,
    "generator_autostart": false
}
```

Return the status of all inputs and outputs

Return the status of all inputs and outputs

AUTHORIZATIONS: ❯   API-Token
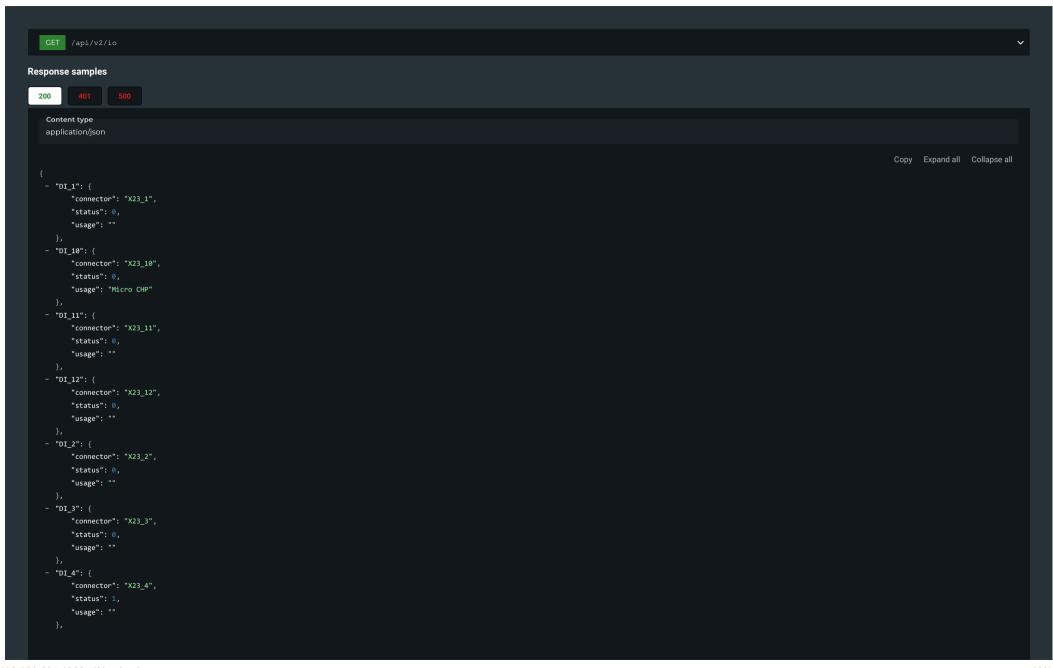
Responses

❯ **200**

Inputs and outputs

❯ **401**

Request is unauthorized. The authentication token is invalid or missing.

> **500**

Internal server error has occurred. Please read the details in the response body.

`GET` `/api/v2/io`

Response samples

`200` `401` `500`

Content type
application/json

Copy   Expand all   Collapse all

```json
{
    - "DI_1": {
        "connector": "X23_1",
        "status": 0,
        "usage": ""
    },
    - "DI_10": {
        "connector": "X23_10",
        "status": 0,
        "usage": "Micro CHP"
    },
    - "DI_11": {
        "connector": "X23_11",
        "status": 0,
        "usage": ""
    },
    - "DI_12": {
        "connector": "X23_12",
        "status": 0,
        "usage": ""
    },
    - "DI_2": {
        "connector": "X23_2",
        "status": 0,
        "usage": ""
    },
    - "DI_3": {
        "connector": "X23_3",
        "status": 0,
        "usage": ""
    },
    - "DI_4": {
        "connector": "X23_4",
        "status": 1,
        "usage": ""
    },
```

```
    - "DI_5": {
         "connector": "X23_5",
         "status": 0,
         "usage": "0V"
     },
    - "DI_6": {
         "connector": "X23_6",
         "status": 0,
         "usage": "CE"
     },
    - "DI_7": {
         "connector": "X23_7",
         "status": 0,
         "usage": "DE"
     },
    - "DI_8": {
         "connector": "X23_8",
         "status": 0,
         "usage": "UV"
     },
    - "DI_9": {
         "connector": "X23_9",
         "status": 0,
         "usage": ""
     },
    - "DO_1": {
         "connector": "X24_4",
         "status": 0,
         "usage": "DC-CONTACTOR"
     },
    - "DO_10": {
         "connector": "X24_10",
         "status": 0,
         "usage": ""
     },
    - "DO_11": {
         "connector": "X24_11",
         "status": 1,
         "usage": "CHP SOC (Min/Max)"
     },
    - "DO_12": {
         "connector": "X24_12",
         "status": 0,
         "usage": "Self Consumption Relay"
     },
    - "DO_13": {
         "connector": "X24_16",
         "status": 0,
         "usage": "PV Reduction 1"
     },
    - "DO_14": {
         "connector": "X24_15",
         "status": 0,
         "usage": "PV Reduction 2"
     },
```

```
  - "DO_16": {
        "connector": "X24_13",
        "status": 1,
        "usage": ""
    },
  - "DO_2": {
        "connector": "X24_3",
        "status": 0,
        "usage": "DC-FAN"
    },
  - "DO_3": {
        "connector": "X24_2",
        "status": 1,
        "usage": ""
    },
  - "DO_4": {
        "connector": "X24_1",
        "status": 0,
        "usage": ""
    },
  - "DO_5": {
        "connector": "X24_5",
        "status": 0,
        "usage": ""
    },
  - "DO_6": {
        "connector": "X24_6",
        "status": 0,
        "usage": ""
    },
  - "DO_7": {
        "connector": "X24_7",
        "status": 0,
        "usage": ""
    },
  - "DO_8": {
        "connector": "X24_8",
        "status": 0,
        "usage": ""
    },
  - "DO_9": {
        "connector": "X24_9",
        "status": 0,
        "usage": ""
    }
}
```
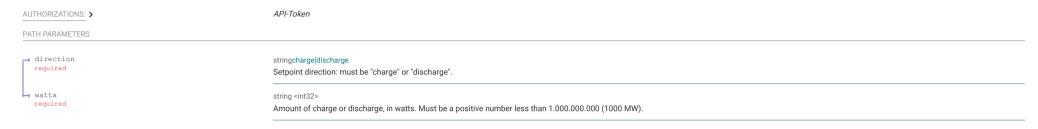
Write API

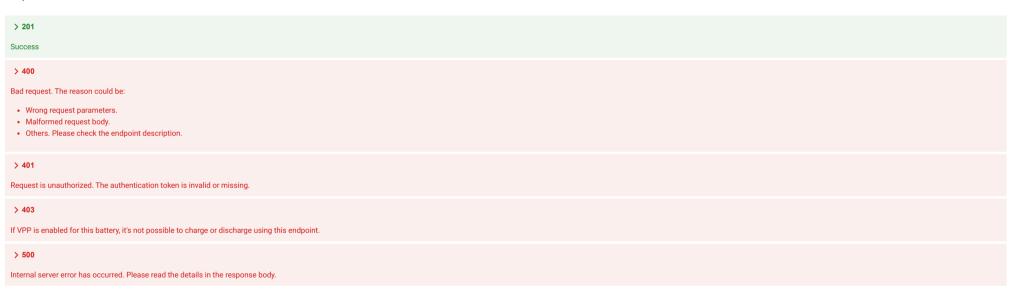Endpoints for writing data or controlling the sonnenBatterie.
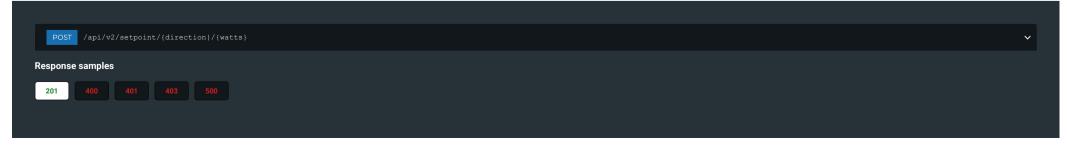
Charge/Discharge battery

Charge/Discharge battery

The discharging power of a storage system can be controlled by setting a setpoint in watts. The corresponding value of the setpoint is kept until the battery receives a new charging or discharging value. If VPP is active, the request will be rejected.
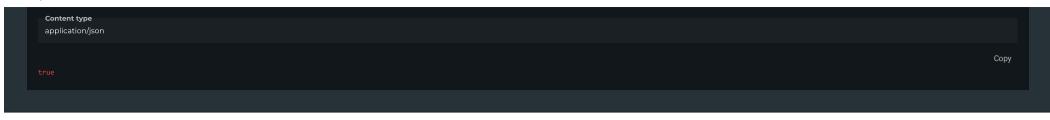
AUTHORIZATIONS: ❯   *API-Token*

PATH PARAMETERS

direction *required*	string charge|discharge Setpoint direction: must be "charge" or "discharge".
watts *required*	string <int32> Amount of charge or discharge, in watts. Must be a positive number less than 1.000.000.000 (1000 MW).

Responses

❯ **201**

Success

❯ **400**

Bad request. The reason could be:

- Wrong request parameters.
- Malformed request body.
- Others. Please check the endpoint description.

❯ **401**

Request is unauthorized. The authentication token is invalid or missing.

❯ **403**

If VPP is enabled for this battery, it's not possible to charge or discharge using this endpoint.

❯ **500**

Internal server error has occurred. Please read the details in the response body.

POST   `/api/v2/setpoint/{direction}/{watts}`

Response samples

`201`   `400`   `401`   `403`   `500`

Content type

application/json

Copy

true

Update configurations

Update configurations

Sets the value of one or more configurations. The writable configurations are:

- EM_OperatingMode
- EM_Prognosis_Charging
- EM_RE_ENABLE_MICROGRID
- EM_ToU_Schedule
- EM_USER_INPUT_TIME_ONE
- EM_USER_INPUT_TIME_THREE
- EM_USER_INPUT_TIME_TWO
- EM_USOC
- EM_US_CHP_Max_SOC
- EM_US_CHP_Min_SOC
- EM_US_GENRATOR_TYPE
- EM_US_GEN_POWER_SET_POINT
- EM_US_RE_ENABLE_MICROGRID
- EM_US_USER_INPUT_TIME_ONE
- EM_US_USER_INPUT_TIME_THREE
- EM_US_USER_INPUT_TIME_TWO
- NVM_PfcFixedCosPhi
- NVM_PfcIsFixedCosPhiActive
- NVM_PfcIsFixedCosPhiLagging
- SH_HeaterOperatingMode
- SH_HeaterTemperatureMax
- SH_HeaterTemperatureMin

The operating mode (EM_OperatingMode) can not be changed if VPP is active.

Possible values for EM_USOC are:

- 0 (disable backup buffer)
- 5 - 100 (backup buffer percentage)

Examples:

```
curl -X PUT -d NVM_PfcFixedCosPhi=1 --header 'Auth-Token: TOKEN' http://SYSTEM-IP/api/v2/configurations
```

```
curl -X PUT -d NVM_PfcFixedCosPhi=1 -d NVM_PfcIsFixedCosPhiActive=0 --header 'Auth-Token: TOKEN' http://SYSTEM-IP/api/v2/configurations
```

AUTHORIZATIONS: ❯   *API-Token*

REQUEST BODY SCHEMA: application/x-www-form-urlencoded
required

⊐ `property name*`   string or null
    `additional property`   A map of configuration entries with key and value.

Responses

> **200**

Success

> **401**

Request is unauthorized. The authentication token is invalid or missing.

— **403**

403 Forbidden

PUT `/api/v2/configurations`   ∨

Response samples

200   401

Content type
application/json

Copy

```
{
    "EM_OperatingMode": "2"
}
```