Content

IC-Meter Public API Accounting, version 1.5

This document is specifying the public REST API available for IC-Meter customers in order to retrieve accounting data from the IC-Meter server. This API requires an API key.

URI	Method	Notes
api/accounting/1.5	POST	Retrieve accounting data

Retrieve Accounting information

Retrieving accounting information is done via the following POST request, where the API key must be supplied by the owner of the relevant buildings.

Format
https://app.ic-meter.com/icm/api/accounting/1.5

Request body
A query body must be specified in JSON format:

```
{
    "apiKey": "{API key}",
    "companyIdentification": "{company}",
    "departmentIdentification": "{department}",
    "apartmentIdentification": [ "{apartment1}", "{apartment2}, … ]",
    "consumptionCategories": [ "{category1}", "{category2}", … ],
    "fromDate": "yyyy-mm-dd",
    "toDate": "yyyy-mm-dd",
    "correctionRun": false
}
```

apiKey, companyIdentification and departmentIdentification must be specified.

apartmentIdentification must be an array. It can contain either ["ALL"] or a list of apartments to be included. By default all apartments are included.

consumptionCategories must be an array. It contains a list of consumption categories as integers. The following categories are supported:

We care about Indoor Climate
www.ic-meter.com
Page 1

- 0 No accounting data (default)
- 1 Account for measured heat in the apartment
- 2 Accounting for heat/indoor climate based on measured indoor climate data in the apartment 'dynamic heating accounting'
- 3 Accounting for total water consumption measured in the apartment
- 4 Accounting for hot water consumption measured in the apartment
- 5 Accounting for cold water consumption measured in the apartment
- 6 Accounting for measurement electricity in kWh in the apartment
- 7 Accounting for measured electricity consumption in kWh for a charging station (electrified car charging etc.)
- 8 Accounting/refunding of share from a photovoltaic system

correctionRun must be either true or false. It is false by default. It specified whether to use correction tariffs or standard tariffs.

Timestamps

Input

In the query body fromDate and toDate are dates specified in local timezone of the relevant buildings. Both dates are included from start of day till end of day in the timezone of the relevant buildings.

Format
yyyy '-' mm '-' dd

yyyy: indicates a four-digit year. It is not permitted to have preceded by 0 and 0000 is not permitted.
mm: indicates a two-digit month of the year, 01 through 12.
dd: indicates a two-digit day of that month, 01 through 31.

In the response output the timestamps are expressed in UTC time (Zulu) e.g. "2011-11-22T22:07:22Z".
Format
yyyy '-' mm '-' dd 'T' hh ':' MM ':' ss 'Z'

yyyy: indicates a four-digit year.
mm: indicates a two-digit month of the year, 01 through 12.
dd: indicates a two-digit day of that month, 01 through 31.
T: Separates date and time.
hh: refers to a zero-padded hour between 00 and 23
mm: refers to a zero-padded minute between 00 and 59.
ss: refers to a zero-padded second between 00 and 59

Example request url 1
https://app.ic-meter.com/icm/api/accounting/1.5

Example request body 1
```
{
```

```
        "apiKey: "zi2ohteeng7Thie7",
        "companyIdentification": '90',
        "departmentIdentification": '43',
        "consumptionCategories": [ '2' ],
        "apartmentIdentification": [ "1" ],
        "fromDate": "2021-01-01",
        "toDate": "2021-01-31"
}
```

Example response 1

```
{
    "period": {
        "fromDate": "2020-12-31T23:00:01Z",
        "toDate": "2021-01-31T23:00:00Z",
        "fractionOfPeriod": 1.0
    },
    "companyIdentification": 90,
    "departments": [
        {
            "departmentIdentification": 43,
            "municipalityIdentification": null,
            "propertyIdentification": null,
            "roadCode": "Hyggebo afd. 43 Islands Brygge  26 E",
            "buildingIdentification": null,
            "latitude": 55.6538313,
            "longitude": 12.5637226,
            "apartments": [
                {
                    "apartmentIdentification": 1,
                    "period": {
                        "fromDate": "2020-12-31T23:00:01Z",
                        "toDate": "2021-01-31T23:00:00Z",
                        "fractionOfPeriod": 1.0
                    },
                    "floorArea": 93.0,
                    "address": {
                        "city": null,
                        "country": null,
                        "door": null,
                        "place": null,
                        "postcode": null,
                        "street": null
                    },
                    "unitIdentification": 10601,
                    "url":
"https://app.ic-meter.com/icm/api/pdf/dynamic/zi2ohteeng7Thie7/10601/2021-01/
dk.pdf",
                    "consumptionCategories": [
                        {
                            "consumptionCategory": {
                                "name": "HEAT_INDOOR",
                                "code": 2
                            },
                            "parameters": {
                                "baseTariff": 0.0,
                                "baseM2Tariff": 0.0,
```

```
                            "greenTariff": 3.0,
                            "eYellowTariff": 2.0,
                            "eRedTariff": 3.0
                    },
                    "latestMeasurementDate": "2021-01-31 22:58:41",
                    "measurementsCount": 8418,
                    "expectedMeasurementCount": 8928,
                    "status": "OK",
                    "cost": 417.6,
                    "data": {
                        "temperature": {
                            "greenPct": 95.0,
                            "yellowPct": 5.0,
                            "redPct": 0.0
                        },
                        "humidity": {
                            "greenPct": 96.0,
                            "yellowPct": 4.0,
                            "redPct": 0.0
                        },
                        "co2": {
                            "greenPct": 50.0,
                            "yellowPct": 19.0,
                            "redPct": 31.0
                        },
                        "gPayment": 279.0,
                        "eYellowPayment": 52.1,
                        "eRedPayment": 86.5
                    },
                    "text1": "Fast betaling for indeklima komfort 3.00
kr./m2, areal: 93.0 m2 i alt 279.00 kr.",
                    "text2": "Lille tillæg: 2.00 kr./m2 i alt 52.10 kr.,
Stort tillæg: 3.00 kr./m2 i alt 86.50 kr.",
                    "text3": "",
                    "text4": "",
                    "text5": ""
                }
            ]
        }
    ]
}
```

Example request url 2

https://app.ic-meter.com/icm/api/accounting/1.5

Example request body 2

```
{
    "apiKey: "zi2ohteeng7Thie7",
    "companyIdentification": '90',
    "departmentIdentification": '42',
    "consumptionCategories": [ '6', '7', '8' ],
    "apartmentIdentification": [ '1', '2' ],
    "fromDate": '2019-01-01',
    "toDate": '2019-01-31'
```

```
}
```

Example response 2

```json
{
    "period": {
        "fromDate": "2019-12-31T23:00:00Z",
        "toDate": "2020-01-31T22:59:59Z",
        "fractionOfPeriod": 1.0
    },
    "companyIdentification": 90,
    "departments": [
        {
            "departmentIdentification": 42,
            "municipalityIdentification": null,
            "propertyIdentification": null,
            "roadCode": "Hyggebo afd. 42 Islands brygge 26 D",
            "buildingIdentification": null,
            "latitude": 55.6538313,
            "longitude": 12.5637226,
            "apartments": [
                {
                    "apartmentIdentification": 1,
                    "period": {
                        "fromDate": "2019-12-31T23:00:00Z",
                        "toDate": "2020-01-31T22:59:59Z",
                        "fractionOfPeriod": 1.0
                    },
                    "floorArea": 100.0,
                    "address": {
                        "city": null,
                        "country": null,
                        "door": null,
                        "place": null,
                        "postcode": null,
                        "street": null
                    },
                    "unitIdentification": 10591,
                    "url": "https://app.ic-meter.com/icm/api/pdf/consumption/
zi2ohteeng7Thie7/10591/2021-01/dk.pdf",
                    "consumptionCategories": [
                        {
                            "consumptionCategory": {
                                "name": "ELECTRICITY",
                                "code": 6
                            },
                            "parameters": {
                                "baseTariff": 25.0,
                                "baseM2Tariff": 0.0,
                                "tariff1": 2.0
                            },
                            "latestMeasurementDate": "2020-01-31 22:00:00",
                            "measurementsCount": 743,
                            "expectedMeasurementCount": 744,
                            "cost": 104.04,
                            "status": "OK",
                            "unit": "kWh",
```

```json
                    "text1": "Grundtarif 40 kWh, á 2.00 kr./kWh i alt 79
.04 kr.",
                    "text2": "Fast tarif 25.0 kr.",
                    "text3": "Tarif pr m2 100.0 m2 á 0.0 kr./m2 i alt 0.
00 kr.",
                    "text4": "",
                    "text5": ""
                },
                {
                    "consumptionCategory": {
                        "name": "ELECTRICITY_CHARGER",
                        "code": 7
                    },
                    "parameters": {
                        "baseTariff": 0.0,
                        "baseM2Tariff": 0.0
                    },
                    "latestMeasurementDate": null,
                    "measurementsCount": 0,
                    "expectedMeasurementCount": 0,
                    "status": "NO_METERS",
                    "text1": "Ingen målere tilknyttet",
                    "text2": "",
                    "text3": "",
                    "text4": "",
                    "text5": ""
                },
                {
                    "consumptionCategory": {
                        "name": "PHOTOVOLTAIC",
                        "code": 8
                    },
                    "parameters": {
                        "baseTariff": 0.0,
                        "baseM2Tariff": 0.0,
                        "surplus": 1500.0
                    },
                    "latestMeasurementDate": null,
                    "measurementsCount": 0,
                    "expectedMeasurementCount": 0,
                    "status": "OK",
                    "cost": -168.53932584269663,
                    "text1": "Overskud 1,500.00 kr. Retur 168.54 kr.",
                    "text2": "",
                    "text3": "",
                    "text4": "",
                    "text5": ""
                }
            ]
        },
        {
            "apartmentIdentification": 2,
            "period": {
                "fromDate": "2019-12-31T23:00:00Z",
                "toDate": "2020-01-31T22:59:59Z",
                "fractionOfPeriod": 1.0
```

```
                    },
                    "floorArea": 100.0,
                    "address": {
                        "city": null,
                        "country": null,
                        "door": null,
                        "place": null,
                        "postcode": null,
                        "street": null
                    },
                    "unitIdentification": 10592,
                    "url": "https://app.ic-meter.com/icm/api/pdf/consumption/
zi2ohteeng7Thie7/10592/2021-01/dk.pdf",
                    "consumptionCategories": [
                        {
                            "consumptionCategory": {
                                "name": "ELECTRICITY",
                                "code": 6
                            },
                            "parameters": {
                                "baseTariff": 25.0,
                                "baseM2Tariff": 0.0,
                                "tariff1": 2.0
                            },
                            "latestMeasurementDate": "2020-01-31 22:00:00",
                            "measurementsCount": 743,
                            "expectedMeasurementCount": 744,
                            "cost": 1668.7,
                            "status": "OK",
                            "unit": "kWh",
                            "text1": "Grundtarif 822 kWh, á 2.00 kr./kWh i alt 1
,643.70 kr.",
                            "text2": "Fast tarif 25.0 kr.",
                            "text3": "Tarif pr m2 100.0 m2 á 0.0 kr./m2 i alt 0.
00 kr.",
                            "text4": "",
                            "text5": ""
                        },
                        {
                            "consumptionCategory": {
                                "name": "ELECTRICITY_CHARGER",
                                "code": 7
                            },
                            "parameters": {
                                "baseTariff": 75.0,
                                "baseM2Tariff": 0.0,
                                "tariff1": 250.0
                            },
                            "latestMeasurementDate": "2020-01-31 22:00:00",
                            "measurementsCount": 743,
                            "expectedMeasurementCount": 744,
                            "cost": 484855.0,
                            "status": "OK",
                            "unit": "kWh",
                            "text1": "Grundtarif 1939 kWh, á 250.00 kr./kWh i al
t 484,780.00 kr.",
```

```
                                "text2": "Fast tarif 75.0 kr.",
                                "text3": "Tarif pr m2 100.0 m2 á 0.0 kr./m2 i alt 0.
00 kr.",
                                "text4": "",
                                "text5": ""
                        },
                        {
                                "consumptionCategory": {
                                    "name": "PHOTOVOLTAIC",
                                    "code": 8
                                },
                                "parameters": {
                                    "baseTariff": 0.0,
                                    "baseM2Tariff": 0.0,
                                    "surplus": 1500.0
                                },
                                "latestMeasurementDate": null,
                                "measurementsCount": 0,
                                "expectedMeasurementCount": 0,
                                "cost": -168.53932584269663,
                                "status": "OK",
                                "text1": "Overskud 1,500.00 kr. Retur 168.54 kr.",
                                "text2": "",
                                "text3": "",
                                "text4": "",
                                "text5": ""
                        }
                    ]
                }
            ]
        }
    ]
}
```

The status field can have the following values:
- OK
- NO_TARIFFS
- NO_METERS
- NO_MEASUREMENTS
- ERROR

The latestMeasurementDate field contains the latest measurement in the specified period. If there are no measurements in the period it will be null, but there could still be measurements after the period e.g. if a new meter just started delivering data.

The expectedMeasurementCount value depends on the resolution of the measurements and the period. If there are hourly data and 31 days were specified it will be 744. If there are only daily data for the same period it will be 31. Comparing it to measurementCount will indicate whether a significant amount of data are missing.

Revision history

Version	Date	Author	Description
1.0	15-11-2019	Neogrid Technologies/BOA	Initial test version

1.1	25-11-2019	Neogrid Technologies/BOA	Input comma-separated lists (consumptionCategories and apartmentIdentification) are now arrays. Output consumptionCategory is now an object which includes integer code for the category.
1.2	31-03-2020	Neogrid Technologies/BOA	Add baseTariff, baseM2Tariff and peakTariffs in parameters output. Add unit field. Update texts.
1.3	26-06-2020	Neogrid Technologies/BOA	Add correctionRun request parameters. Move and adjust url so it is under apartments and includes consumption categories. Add latestMeasurementDate, measurementsCount and expectedMeasurementsCount fields to assess quality of data. Extend list of consumption categories supported.
1.4	18-02-2021	Neogrid Technologies/BOA	The url field in the output was replaced with a urls field which contains a list of strings. This may contain more than one url. For INDOOR_CLIMATE reports after 2021-01-01 the data structure now has greenPct, yellowPct and redPct separately for temperature, humidity and co2. The cost field is also included in this case.
1.5	04-03-2021	Neogrid Technologies/BOA	The url field is now a single string again. The three billing PDFs that can occur will be combined into a single one.