

Manual API Meetdata.nl

API version 1

Version	1.0
Date	30-8-2018

Version log	Version log	Date	Comment
	1.0	30-8-2018	Manual for the new API of Meetdata.nl.

Contents

1	Information for API users Meetdata.nl	3
1.1	Technical description	3
1.2	Fair use policy	3
1.3	Authentication	3
1.4	Error handling	3
2	Retrieving results Meter list	5
2.1	Input	5
2.2	Result	5
3	Result retrieving meter data	7
3.1	Input	7
3.2	Result	7
4	Channel list	9
4.1	Most common channels	9
4.2	Additional channels	12
5	Metering field and Metering location	14
5.1	What is what	14
5.2	How to recognize	15

1 Information for API users Meetdata.nl

You can use the API to import your meter list and meter data into your own system. In order to do so, you need a username and password that you can create on the Kenter Client Portal. This document contains the technical information you require to retrieve data and to process data from the API.

The structure or attributes of the objects may be further developed in the future, or will change. We advise you to take this into account when creating your software.

If you have questions or comments with regard to the possibilities for data access or if you have technical questions, please contact Kenter.

1.1 Technical description

You will receive all answers in JSON.

Several requests may be made.

- You can request your list of connections, meters and channels
- For each meter, you can request the meter data per month or per day

There are various urls for this.

The API version is indicated on the first page and in the footnotes of this manual.

1. Retrieving meter list: `https://webapi.meetdata.nl/api/{{API Versie}}/meters`
2. Retrieving meter data: `https://webapi.meetdata.nl/api/{{API Versie}}/measurements/{{connectionId}}/{{meteringPointId}}/{{year}}/{{month}}`
or
`https://webapi.meetdata.nl/api/{{API Versie}}/measurements/{{connectionId}}/{{meteringPointId}}/{{year}}/{{month}}/{{day}}`

These are described in more detail on the following pages.

1.2 Fair use policy

In order to be able to provide the API free of charge, a fair use policy applies to its use. In case of excessive use, for example the retrieval of the total history of metering points several times within a short period, Kenter may charge the costs to you.

1.3 Authentication

Before you can use the API, you require authentication. This is done by means of your username and the password that you have created on the Client Portal. You need to enter these for every API call. You are required to convert your username and password to a base64 value with a colon (:) in between.

The header you need to send will look like this:

“Authorization: Basic {{base64(username + ':' + password)}}”

1.4 Error handling

Errors handled by us will be returned to you in the following format:

```
{  
  "error": "Authorization failed"  
}
```

2 Retrieving results Meter list

The url for retrieving the meter list via API version 1 is:
<https://webapi.meetdata.nl/api/1/meters>

2.1 Input

- User credentials as base64 value

2.2 Result

The result of the meter list has the following structure:

Connection	
field	<u>connectionId</u> <u>meteringPoints</u>
type of data	VARCHAR(64) VARCHAR(64)
output	(various) (various)
description	Level of connection based on the EAN code or alternative feature Metering list

Metering point						
field	<u>meteringPointId</u>	<u>productType</u>	<u>meteringPointType</u> ¹	<u>meterNumber</u>	<u>related Metering PointId</u>	<u>channels</u>
type of data	VARCHAR(64)	VARCHAR(32)	VARCHAR(32)	VARCHAR(32)	VARCHAR(64)	VARCHAR(64)
output		C = Cooling E = Electricity G = Gas H = Heating W = Water X = Combi	OP = Transfer point BP = Gross production TM = Intermediate metering			
description	Physical or virtual metering point	Product type	Type of metering. Only for virtual metering point.	Meter number. Only for physical metering point.	Relationship with 'parent' metering point	List of channels

Channel			
Field	<u>channel</u>	<u>unit</u> ²	<u>direction</u>
type of data	VARCHAR(32)	VARCHAR(32)	VARCHAR(32)
output	(various)	A = ampere KWH = kilowatt hour KW = kilowatt M3 = cubic meter W = watt	LVR = supply TLV = feed-in NET = nett (LVR-TLV) (empty) = other
description	Channel ID	Unit	Phase (for PQ)

¹ Other options: KP (Coupling point), NP (Nett production), TB (Permissible business consumption)

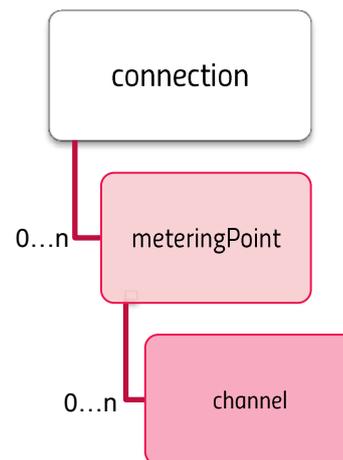
² In addition, the following occurs sporadically: %, GJ, KVARH, PF, V

The meter list consists of an array of objects. This array can contain 0-n objects.

A meteringPoint may cover both an individual meter and an aggregated set of meters, depending on the situation at the specific location. See chapter 5. The field RelatedMeteringPointId is filled when, at physical metering points, another metering point (often virtually) is hierarchically above the requested metering point. In this way you gain an insight into the structure of the metering points.

The result of a correctly executed request for the meter list will look as follows:

```
[
{
  "connectionId": "87169091000005949H",
  "meteringPoints": [
    {
      "meteringPointId": "8009759102",
      "productType": "E",
      "meteringPointType": "",
      "meterNumber": "90RU002702188108",
      "relatedMeteringPointId": "6500034816 ",
      "channels": [
        {
          "channel": "11180",
          "unit": "KWH",
          "direction": "LVR"
        },
        {
          "channel": "10180",
          "unit": "KWH",
          "direction": "LVR"
        },
        {
          "channel": "11160",
          "unit": "KW",
          "direction": "LVR"
        },
        {
          "channel": "11181",
          "unit": "KWH",
          "direction": "LVR"
        },
        {
          "channel": "11182",
          "unit": "KWH",
          "direction": "LVR"
        }
      ]
    }
  ]
}
]
```



3 Result retrieving meter data

You can retrieve the meter data per month or per day.

The url for retrieving the meter data per month via API version 1 is:

`https://webapi.meetdata.nl/api/1/measurements/{{connectionId}}/{{meteringPointId}}/{{year}}/{{month}}`

The url for retrieving the meter data per day via API version 1 is:

`https://webapi.meetdata.nl/api/1/measurements/{{connectionId}}/{{meteringPointId}}/{{year}}/{{month}}/{{day}}`

In approximately 1% of the cases, meter data is still being repaired (and therefore adjusted) after initial registration. With regard to electricity, repair can take place up to about 14 days back and for gas this is up to about 50 days back. In addition, meter data can sometimes come in with a day's delay, for example in case of a malfunction.

For this reason, you have the option to view meter data of longer ago, to verify that the data is complete and up-to-date.

For example, you can, as a standard, request the data of up to 3 days ago for the daily request, and once a week you can request a complete current + last month overview and have your previous data overwritten.

3.1 Input

- connectionId (e.g. 8716909100000059XXX)
- meteringPointId (e.g. 8009759XXX)
- year (e.g. 2018)
- month (1 up to and including 12 for the corresponding month)
- day (1 up to and including 31 for the corresponding day)

3.2 Result

The result of the meter data has the following structure:

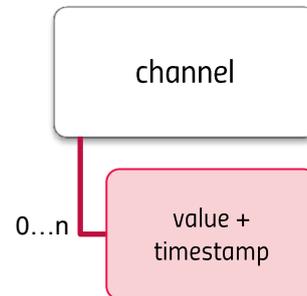
Meter data			
field	<u>channel</u>	<u>value</u>	<u>timestamp</u>
type of data	VARCHAR(64)	DECIMAL	BIGINT
possible data	(various)	(various)	(various)
description	Channel ID	Consumption/position, decimal value	Time indication in Unix Time Stamp in UTC. Any consumption refers to the end of the period. Contains no summer/winter time.

The meter data also consists of an array of objects. This array can contain 0 to n objects. Here, the 5-digit code is for the channel ID, the value for the measured value and the timestamp is the unix timestamp from where the consumption was supplied in UTC. In chapter 4 you can find an explanation at the available channels.

Please note: you will not receive a result of meter data for all channels every day. This partly depends on the frequency of the meter reading. See also the frequency column in the overview table in chapter 4.

Below is an example of a result that you can expect:

```
{
  "16180": [
    {
      "value": 117.5,
      "timestamp": 1519946100
    },
    {
      "value": 129.95,
      "timestamp": 1519947000
    }
  ]
}
```



4 Channel list

Below you will find an explanation of the possible channels that you can find at the API of Meetdata.nl.

It is possible that the above list with channels will be expanded in the future. We advise you to take this into account when creating your software.

Terms:

- E Electricity
- G Gas
- OP Transfer point metering (Main metering)
- BP Gross production metering
- TM Intermediate metering
- G2C Connection ≥ 40 m³ / hour, annual consumption ≤ 170.000 m³
- GXX Connection ≥ 40 m³ / hour, annual consumption > 170.000 and $\leq 1.000.000$ m³
- GGV Connection ≥ 40 m³ / hour, annual consumption $> 1.000.000$ m³ over the previous 36 months

4.1 Most common channels

The table below lists the most common channels for Electricity and Gas:

Channel number	Description	Energy type	Unit	Interval	Only occurs at	Metering field / Metering location	Note
10180	Supply	E	KWH	5/15 min	OP, BP, TM	Metering field	Consumption from meter
10280	Feed-in	E	KWH	5/15 min	OP, BP, TM	Metering field	Consumption from meter
10380	Supply reactive power	E	KVARH	5/15 min	OP	Metering field	Consumption from meter
10480	Feed-in reactive power	E	KVARH	5/15 min	OP	Metering field	Consumption from meter
11160	Peak capacity supply	E	KW	15 min	OP	Metering field	Max. quarter-hourly demand from meter
11180	Meter reading total supply	E	KWH	month	BP	Metering field	Reading from meter
11181	Meter reading low rate supply	E	KWH	month	OP	Metering field	Reading from meter
11182	Meter reading high rate supply	E	KWH	month	OP	Metering field	Reading from meter
11260	Peak capacity feed-in	E	KW	15 min	OP	Metering field	Max. quarter-hourly demand from meter
11280	Meter reading feed-in total	E	KWH	month	BP	Metering field	Reading from meter
11281	Meter reading feed-in low rate	E	KWH	month	OP	Metering field	Reading from meter
11282	Meter reading feed-in high rate	E	KWH	month	OP	Metering field	Reading from meter
11381	Meter reading feed-in reactive power low rate	E	KVARH	month	OP	Metering field	Reading from meter
11382	Meter reading feed-in reactive power high rate	E	KVARH	month	OP	Metering field	Reading from meter
16080	Nett consumption for allocation	E	KWH	15 min	OP > 100kW	Metering location	Nett = supply (16180) – feed-in (16280)

16180	Supply for allocation	E	KWH	15 min	OP > 100kW	Metering location	Consumption with transformer correction factor
16280	Feed-in for allocation	E	KWH	15 min	OP > 100kW	Metering location	Consumption with transformer correction factor
18160	Peak power supply for invoicing	E	KW	15 min	OP	Metering location	Max. quarter-hourly demand with transformer correction factor
18180	Supply for invoicing	E	KWH	month	BP	Metering location	Consumption with transformer correction factor
18181	Low rate supply for invoicing	E	KWH	month	OP	Metering location	Consumption with transformer correction factor
18182	High rate supply for invoicing	E	KWH	month	OP	Metering location	Consumption with transformer correction factor
18280	Feed-in for invoicing	E	KWH	month	BP	Metering location	Consumption with transformer correction factor
18281	Feed-in low rate for invoicing	E	KWH	month	OP	Metering location	Consumption with transformer correction factor
18282	Feed-in high rate for invoicing	E	KWH	month	OP	Metering location	Consumption with transformer correction factor
18381	Supply reactive power low rate for invoicing	E	KVARH	month	OP	Metering location	Consumption with transformer correction factor
18382	Supply reactive power high rate for invoicing	E	KVARH	month	OP	Metering location	Consumption with transformer correction factor
70180	Supply	G	M3	15/60 min		Metering field	Corrected volume from EVHI
70280	Feed-in	G	M3	15/60 min		Metering field	Uncorrected volume from EVHI
70380	Supply	G	M3	15/60 min		Metering field	Uncorrected volume from meter
70480	Feed-in	G	M3	15/60 min		Metering field	Uncorrected volume from meter
71180	Meter reading supply	G	M3	month		Metering field	Corrected volume from EVHI
71280	Meter reading feed-in	G	M3	month		Metering field	Corrected volume from EVHI
71380	Meter reading feed-in	G	M3	month		Metering field	Uncorrected volume from meter
71480	Meter reading feed-in	G	M3	month		Metering field	Uncorrected volume from meter
76180	Supply for invoicing	G	M3	60 min	GXX, GGV	Metering location	Uncorrected volume with gas correction factor or from EVHI
76280	Feed-in for invoicing	G	M3	60 min	GXX, GGV	Metering location	Corrected volume with gas correction factor or from EVHI
78180	Supply for invoicing	G	M3	month	G2C	Metering location	Corrected monthly volume with gas correction factor or from EVHI
78280	Feed-in for invoicing	G	M3	month	G2C	Metering location	Corrected monthly volume with gas correction factor

4.2 Additional channels

In the table below you will find additional channels for Power Quality, heating, cooling and water:

Terms:

E	Electricity
W	Water
H	Heating
C	Cooling
PQ	Power Quality

Channel number	Description	Energy type	Unit	Interval	Only occurs at	Metering field / Metering location	Note
20335	Power factor L1	E	PF	5/15 min	PQ	Metering field	
20535	Power factor L2	E	PF	5/15 min	PQ	Metering field	
20735	Power factor L3	E	PF	5/15 min	PQ	Metering field	
30315	Current L1	E	A	5/10 min	PQ	Metering field	
30316	Total harmonic distortion current L1	E	A	5/10 min	PQ	Metering field	
30317	Total harmonic distortion current L1	E	%	5/10 min	PQ	Metering field	
30325	Power L1	E	V	5/10 min	PQ	Metering field	
30326	Total harmonic distortion current L1	E	V	5/10 min	PQ	Metering field	
30327	Total harmonic distortion current L1	E	%	5/10 min	PQ	Metering field	
30365	Active power L1	E	W	5/10 min	PQ	Metering field	
30515	Current L2	E	A	5/10 min	PQ	Metering field	
30516	Total harmonic distortion power L2	E	A	5/10 min	PQ	Metering field	
30517	Total harmonic distortion power L2	E	%	5/10 min	PQ	Metering field	
30525	Power L2	E	V	5/10 min	PQ	Metering field	
30526	Total harmonic distortion power L2	E	V	5/10 min	PQ	Metering field	
30527	Total harmonic distortion power L2	E	%	5/10 min	PQ	Metering field	
30565	Active power L2	E	W	5/10 min	PQ	Metering field	
30715	Current L3	E	A	5/10 min	PQ	Metering field	
30716	Total harmonic distortion current L3	E	A	5/10 min	PQ	Metering field	
30717	Total harmonic distortion current L3	E	%	5/10 min	PQ	Metering field	
30725	Power L3	E	V	5/10 min	PQ	Metering field	
30726	Total harmonic distortion power L3	E	V	5/10 min	PQ	Metering field	

30727	Total harmonic distortion power L3	E	%	5/10 min	PQ	Metering field	
30765	Active power L3	E	W	5/10 min	PQ	Metering field	
30915	Zero-current	E	A	5/10 min	PQ	Metering field	
50180	Consumption supply	C	GJ	15 min		Metering field	
50280	Consumption feed-in	C	GJ	15 min		Metering field	
51180	Meter reading supply	C	GJ	15 min		Metering field	
51280	Meter reading feed-in	C	GJ	15 min		Metering field	
60180	Levering	H	GJ	15 min		Metering field	
60280	Feed-in	H	GJ	15 min		Metering field	
61180	Meter reading supply	H	GJ	15 min		Metering field	
61280	Meter reading feed-in	H	GJ	15 min		Metering field	
80180	Supply	W	M3	15 min		Metering field	
80280	Feed-in	W	M3	15 min		Metering field	
81180	Supply	W	M3	15 min		Metering field	
81280	Feed-in	W	M3	15 min		Metering field	

For all the above channels, new data is made available on a daily basis.

5 Metering field and Metering location

If you have used the former API of Meetdata.nl, you will have heard of the distinction we make between Metering location and Metering field. Unfortunately, given the services we perform, we cannot avoid making this distinction in the new API as well. However, the structure for it has changed slightly.

5.1 Which is which

A **Metering field** is a metering point hierarchically below a Metering location and has a 0 to n relation to it. The channels under a Metering field represent the readings from a device, meter or EVHI.

Depending on the type and configuration of the meter or EVHI, the interval at interval data will always be 5, 15 or 60 minutes of data, at Meter readings monthly or yearly.

In the case of intermediate meters, a Metering field can also be a calculation for a metering point that is calculated by means of the data from other readings, e.g. by means of summing or balancing, so that there does not have to be a physical meter to get the desired metering data.

A **Metering location** is a metering point hierarchically above a Metering field, but of which there may be several under a connection.

The channels under a Metering location represent meter data at an aggregated level that are used in legal processes. These meter data are calculated on the basis of the meter data from the Metering field.

Examples of calculations at the Metering location level are:

- Summing/balancing of measurement data of various meters
- Applying the energy loss factor (transformer and gas correction factor) if the meter is not at the transfer point of the connection

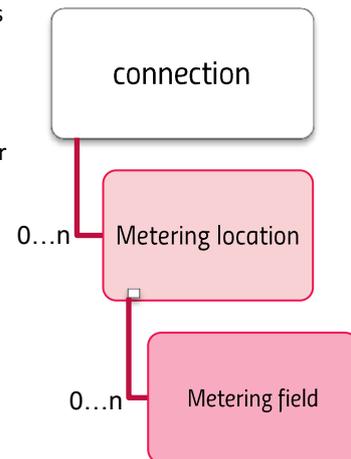
Depending on the technical capacity of the connection, the interval in which data is available is:

- For allocation at electricity 15 and at gas 60 minutes of data
- For invoicing of both electricity and gas: monthly or annual data

Please note: In many cases the Metering location will be calculated on the basis of 1 meter and the Metering field and Metering location will give exactly the same frequency of data (for example both 15 minutes values). When this occurs, we will not forward the data of the Metering Field level, to prevent you from receiving the same data twice.

Thus, when you do receive the data of the Metering field level, this means that this data may be interesting, for example:

- Because the data of the Metering location is the sum from several meters.
- Because the data frequency at the level of the Metering field level is higher than that at the level of the Metering location, for example:
 - Month values at Metering location and 15/60 minute values at Metering field
 - 15 minutes values at Metering location and 5 minutes values at Metering field.
- Because it is an intermediate meter. These have the measurement data only at the level of the Metering field (from the meter), and therefore not at the level of the Metering location, since no messages need to be sent for invoicing and allocation.



5.2 How to recognize

You recognize a **Metering field** by the presence of a relatedMeteringPointId and the unfilled meteringPointType field. The relatedMeteringPointId will always refer to a Metering location of the same connection. This means that you can derive the type of measurement for a Metering field via the meteringPointType of the relatedMeteringPointId. The type of measurement OP / BP / TM is in fact a property of the Metering location.

A **Metering location** can be recognized by the fact that the relatedMeteringPointId field is not filled, while the meteringPointType field is indicated here.

Hierarchical level	Data level	Missing master data fields	Interval of data
Metering field	Device, e.g. meter or EVHI	meteringPointType	monthly/annual values or 5, 15 or 60 minutes values
Metering location	Transfer point, as established in laws and regulations	relatedMeteringPointId	monthly/annual values and possibly 15 or 60 minutes values



Colophon:

This is a publication of:

Kenter B.V.

Postbus 4
6920 AA Duiven
The Netherlands
T (088) 191 15 55
E info@kenter.nu
www.kenter.nu

Kenter makes energy work

Kenter is an organization that provides complete metering equipment and medium-voltage installations for corporate clients: from their design and installation to the maintenance and management. We offer reliable energy supplies and smart and innovative metering solutions to more than 25,000 clients. Thanks to our extensive knowledge and expertise, we can provide our clients with optimal advice on contemporary energy management as well as cost-efficient and sustainable entrepreneurship. Kenter is part of Alliander.

© Kenter B.V. | November 2017:

This document is and will remain the property of Kenter B.V. and may not be reproduced, stored in an automated database or made public (in any form whatsoever), without the permission of Kenter.

This document and the technologies, know-how, procedures and/or methods described therein are protected by intellectual property right, which right belong to Kenter.