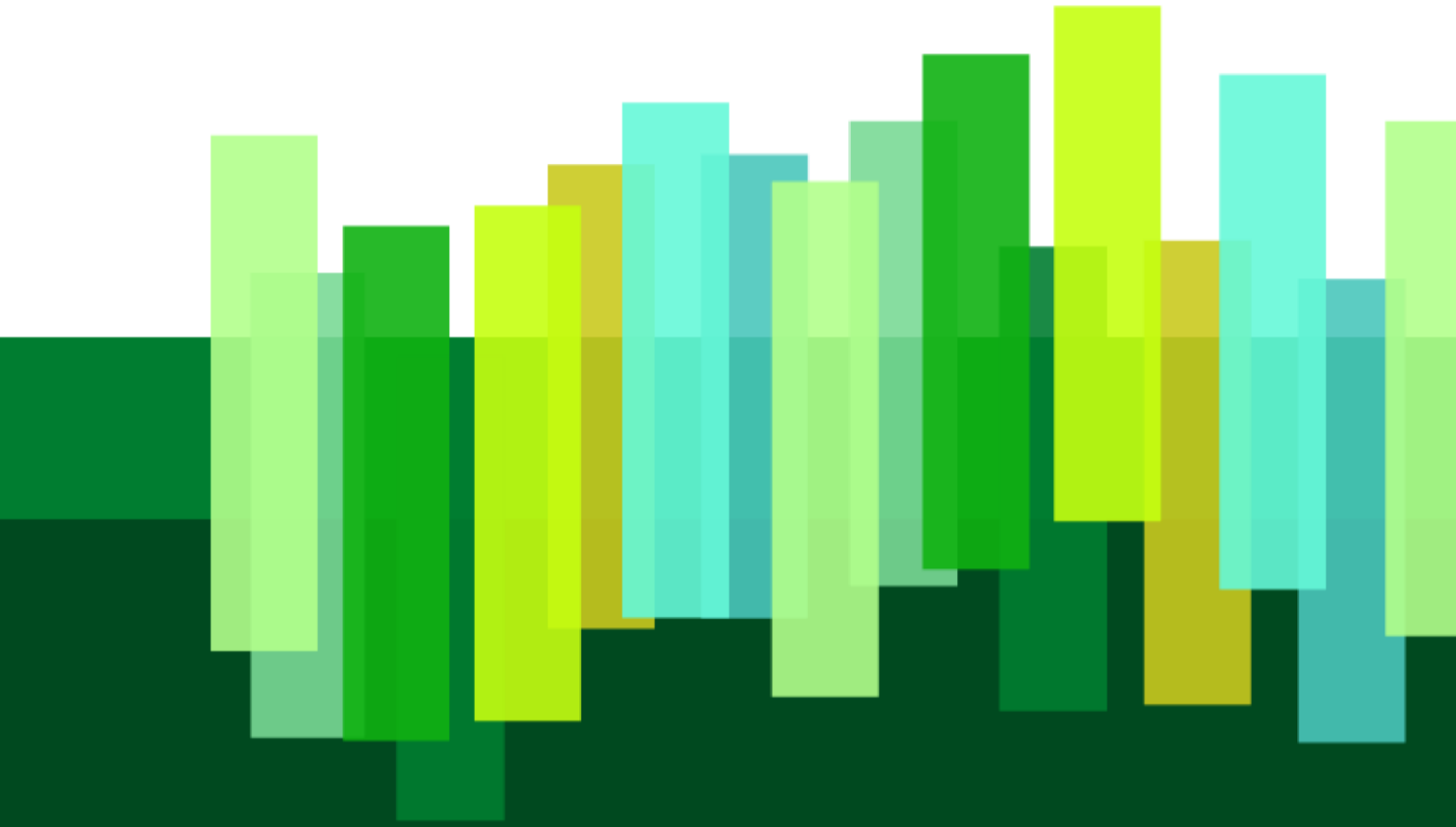
kenter

API Manual
Web Service
NearRealTimeData
2022

Version 20220506



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1 Table of Contents

1.1 Introduction

You have purchased the Near-RealTime Data product from Kenter. Thank you for the trust you have shown in us. To use Near-RealTime Data in your own energy management system (EMS), you need the web service (API). This manual explains how you can retrieve the data from your meters in just a few steps and it in your own EMS.

This document is a technical description that has been written for application administrators and developers. The supplier or application manager of your EMS can help you use the web service.

If you have any questions about Near-RealTime Data
Please contact our customer service department on +31 (0)88-1118989.
Our staff can be contacted on working days from 08:00 to 17:00.
You can also send an e-mail to service@kenter.nu.

2 Web Service

The web service (API) is described using a WSDL file, which can be accessed through the following URL:
https://api-realtime.kenter.nu/realtime/1.0/soap.wsdl

The API itself can be reached using the following URL (which you then have to complete with the desired query).
https://api-realtime.kenter.nu/realtime/1.0/

The possible queries are explained further in Section 2.1 Authentication.

The API supports three queries:

- one for retrieving the metadata for a meter (2.2 Query for meter with metadata);
- one for retrieving the latest reading (2.3 Request for latest reading);
- one for retrieving all the readings within a given interval (2.4 Query for readings within a time interval).

Only the query for the latest reading will normally be used for retrieving readings. Before a query can be run, authentication is needed (the rights are checked).

2.1 Authentication

To ensure data security, HTTPS is used for accessing the web service. In addition, every request for each connection contains a combination of an EAN code and password. The following checks are used to verify that the query is correct:

- Does the web service environment contain a location with the specified EAN code?
- Does the web service environment contain a user with the specified EAN code?
- Does the password (code) of this web service user match the specified password?

If the answers to all the above questions are affirmative, the query will then be run. If authentication of a connection/meter fails, an error message will be returned. The error messages are explained further in Section 2.5 Error messages.

2.2 Query for meter with metadata

The inputs needed for the request for retrieving metadata about one or more meters are an EAN code and password (code) for each connection. Optionally, a meter code (serial number) can be specified for each meter. The query is generally issued based on the connection (EAN code). The web service then returns the data of all the meters for that connection. Adding the serial number of the meter also lets you retrieve data for an individual meter.

This request is structured as follows::

```
<soapenv:Envelope
xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns="https://kenter.realm2m.nl/api/kenter/1.0/">
<soapenv:Header/>
<soapenv:Body>
   <ns:getMeterMetaData>
      <meter>
         <eanCode>876600504607071300</eanCode>
         <passcode>jTx7HCB</passcode>
         <meterCode>V066005019551812</meterCode>
      </meter>
      <meter>
         <eanCode>871687120000096366</eanCode>
         <passcode>oTW66As</passcode>
      </meter>
   </ns:getMeterMetaData>
</soapenv:Body>
</  oapenv:Envelope>
```

Explanation of the fields

- eanCode: EAN code of the connection or meter for which metadata is to be retrieved;
- passcode: Password for the connection in question;
- meterCode (optional): Serial number of the specific meter for which metadata is to be retrieved.

The server's response is structured as follows:

```
<S:Envelope
xmlns:S="http://schemas.xmlsoap.org/soap/envelope/">
<S:Body>
   <ns2:getMeterMetaDataResponse
      xmlns:ns2="https://kenter.realm2m.nl/api/kenter/1.0/">
      <return>
         <eanCode>876600504607071300</eanCode>
         <meterCode>V066005019551812</meterCode>
         <type>Elektriciteitsmeter</type>
         <name>Kwekerij Jan Janssen</name>
         <address>Gasperielaan 2B</address>
         <location>Amsterdam</location>
      </return>
      <return>
         <eanCode>871687120000096366</eanCode>
         <meterCode>Z0NR000042279210</meterCode>
         <type>Gasmeter</type>
         <name>Hoogevoort B.V.</name>
         <address>Gasperielaan 2</address>
         <location>Amsterdam</location>
      </return>
   </ns2:getMeterMetaDataResponse>
</S:Body>
</  :Envelope>
```

Explanation of the fields

- eanCode: EAN code of the connection or meter;
- meterCode: Serial number of the meter for which metadata has been retrieved;
- type: Type of meter;
- name: Name of the connection;
- address: Address of the connection;
- location: Town/city for the connection.

2.3 Request for latest reading

The inputs needed for the request for retrieving the latest reading from one or more meters are an EAN code and password (code) for each meter. Optionally, a meter code (serial number) can be specified, allowing data for the individual meter to be retrieved.

This request is structured as follows:

```
<soapenv:Envelope
 xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:ns="https://kenter.realm2m.nl/api/kenter/1.0/">
 <soapenv:Header/>
 <soapenv:Body>
    <ns:getLatestMeasurement>
       <meter>
          <eanCode>876600504607071300</eanCode>
          <passcode>jTx7HCB</passcode>
          <meterCode>V066005019551812</meterCode>
       </meter>
       <meter>
          <eanCode>871687120000096366</eanCode>
          <passcode>oTW66As</passcode>
       </meter>
    </ns:getLatestMeasurement>
 </soapenv:Body>
</soapenv:Envelope>
```

Explanation of the fields

- eanCode: EAN code of the location or meter for which the latest reading is to be retrieved;
- passcode: Password of the user in question at the location;
- meterCode (optional): The serial number of the specific meter for which the latest reading is to be retrieved.

The server's response is structured as follows:

```
<S:Envelope
xmlns:S="http://schemas.xmlsoap.org/soap/envelope/">
<S:Body>
   <ns2:getLatestMeasurementResponse
      xmlns:ns2="https://kenter.realm2m.nl/api/kenter/1.0/">
      <return>
         <eanCode>876600504607071300</eanCode>
         <meterCode>V066005019551812</meterCode>
         <counterType>interval
         </name>
         <counterCode>LVR
         </type>
         <measureValue>
            <timestamp>2022-03-03T08:45:00+01:00</timestamp>
            <value>42</value>
         </measureValue>
      </return>
      <return>
         <eanCode>876600504607071300</eanCode>
         <meterCode>V066005019551812</meterCode>
         <counterType>interval
         </name>
         <counterCode>TLV
         </type>
         <measureValue>
            <timestamp>2022-03-03T08:45:00+01:00</timestamp>
            <value>45</value>
         </measureValue>
      </return>
      <return>
         <eanCode>876600504607071300</eanCode>
         <meterCode>Z0NR000042279210</meterCode>
         <counterType>interval
         </name>
         <counterCode>VN
         </type>
         <measureValue>
            <timestamp>2022-03-03T08:00:00+01:00</timestamp>
            <value>631</value>
         </measureValue>
      </return>
   </ns2:getLatestMeasurementResponse>
</S:Body>
</S:Envelope>
```

Explanation of the fields

- eanCode: EAN code of the connection or meter;
- meterCode: Serial number of the meter for which the latest reading has been retrieved;
- counterType: Type of reading (interval/record);
- counterCode: Abbreviation for consumption or supply to the grid, with the following options:
- LVR: Electricity supplied by the grid in kWh;
- TLV: Electricity supplied to the grid in kWh;
- LVB: Electricity supplied by the grid as reactive current in kVArh;
- TLB: Electricity supplied to the grid as reactive current in kVArh;
- VN: Derived volume (gas) in m3;
- measureValue: The specific reading (in this case the last known reading);
- timestamp: Timestamp of the most recent reading (see Section 2.6 Timestamp format);
- value: Value at measured at the moment of the timestamp.

2.4 Query for readings within a time interval

The query for retrieving all the readings within a given interval needs an EAN code, a password and a starting time as its inputs. Optionally, a meter code (serial number) can be specified for each meter plus an end time. If no end time is specified, the current time is taken. Retrieving data over a period of longer than 31 days is not possible. If you try to do that, the web service will give an error message.

This request is structured as follows:

```
<soapenv:Envelope
 xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/"
 xmlns:ns="https://kenter.realm2m.nl/api/kenter/1.0/">
 <soapenv:Header/>
 <soapenv:Body>
    <ns:getMeterData>
       <meter>
          <eanCode>876600504607071300</eanCode>
          <passcode>oTW66As</passcode>
          <startDate>2022-03-02T21:00:00+01:00</startDate>
          <endDate>2022-03-03T09:00:00+01:00</endDate>
       </meter>
    </ns:getMeterData>
 </soapenv:Body>
</soapenv:Envelope>
```

Explanation of the fields

- eanCode: EAN code of the connection or meter for which data is to be retrieved;
- passcode: Password for the connection in question;
- meterCode (optional): The serial number of the specific meter for which data is to be retrieved.
- startDate: Starting timestamp of the period for which data is to be retrieved (see Section 2.6 Timestamp format);

- endDate (optional): End timestamp of the period for which data is to be retrieved (see Section 2.6 Timestamp format).

The server's response is structured as follows:

```
<S:Envelope
xmlns:S="http://schemas.xmlsoap.org/soap/envelope/">
<S:Body>
   <ns2:getMeterDataResponse
      xmlns:ns2="https://kenter.realm2m.nl/api/kenter/1.0/">
      <return>
         <eanCode>876600504607071300</eanCode>
         <meterCode>V066005019551812</meterCode>
         <counterType>interval
         </name>
         <counterCode>VN
         </type>
         <measureValue>
            <timestamp>2022-03-02T21:00:00+01:00</timestamp>
            <value>627</value>
         </measureValue>
         <measureValue>
            <timestamp>2022-03-02T22:00:00+01:00</timestamp>
            <value>678</value>
         </measureValue>
         ...
         <measureValue>
            <timestamp>2022-03-03T08:00:00+01:00</timestamp>
            <value>594</value>
         </measureValue>
         <measureValue>
            <timestamp>2022-03-03T09:00:00+01:00</timestamp>
            <value>631</value>
         </measureValue>
      </return>
   </ns2:getMeterDataResponse>
</S:Body>
</S:Envelope>
```

Explanation of the fields

- eanCode: EAN code of the connection or meter;
- meterCode: The serial number of the meter for which the latest reading has been retrieved;
- counterType: Type of reading (interval/record);
- counterCode: Abbreviation for consumption or supply to the grid, with the following options:
    - LVR: Electricity supplied by the grid in kWh;
    - TLV: Electricity supplied to the grid in kWh;
    - LVB: Electricity supplied by the grid as reactive current in kVArh;
    - TLB: Electricity supplied to the grid as reactive current in kVArh;
    - VN: Derived volume (gas) in m3.

- measureValue: Specific reading;
- timestamp: Timestamp of the reading (see Section 2.6 Timestamp format);
- value: Value at measured at the moment of the timestamp.

2.5 Error messages

If an error occurs during a query, the requesting party receives a single response with an error message.

This response from the server is structured as follows:

```
<S:Envelope
 xmlns:S="http://schemas.xmlsoap.org/soap/envelope/">
 <S:Body>
   <S:Fault
      xmlns:ns4="http://www.w3.org/2003/05/soap-envelope">
      <faultcode>S:Server</faultcode>
      <faultstring>The meterlist cannot be empty</faultstring>
      <detail>
         <ns2:FaultException
            xmlns:ns2="http://kenter.realm2m.nl/api/kenter/1.0/">
            <errorCode>1008</errorCode>
            <errorMessage>The meterlist cannot be empty</errorMessage>
         </ns2:FaultException>
      </detail>
   </S:Fault>
 </S:Body>
</S:Envelope>
```

This response from the server is structured as follows:

- faultstring: Description of the error;
- errorCode: Code for the error;
- errorMessage: Description of the error.

The error codes listed below may be picked up and returned:

Code	Text	Meaning
1000	**'The EAN-code ... is invalid'**	The stated EAN code does not comply with the rules for a valid EAN code (i.e. it is not a numeric code).
1001	**The combination of EAN-code and passcode is invalid for EAN-code ...'**	The combination of EAN code and password (code) given is incorrect for that EAN code, or the EAN code does not exist.
1002	**'Incorrect date format for start date given at EAN-code ...'**	The format of the timestamp for the starting time is incorrect. The correct format is described in Section 3.6 (Timestamp format).
1003	**'Incorrect date format for end date given at EAN-code ...'**	The format of the timestamp for the end time is incorrect.
1004	**'The end date is prior to the start date at EAN-code ...'**	The timestamp given for the end time is before the timestamp for the start of the interval.
1005	**'Maximum period of 31 days exceeded at EAN-code ...'**	The number of days between the starting time and the end time is more than the permitted maximum of 31 days.
1006	**'The meter code ... does not exist for EAN-code ...'**	The meter code given does not exist within the stated EAN code.
1007	**'Insufficient rights for EAN-code ...'**	The user does not have the appropriate authorisations for the EAN code or for the meters within that EAN code.
1008	**'The meterlist cannot be empty'**	No EAN codes were included in the request.
1009	**'A meter without EAN-code was given, EAN-code cannot be left empty'**	For one of the meters in the query, no EAN code was specified (or the EAN code field was left empty), which means that the location could not be determined.

2.6 Timestamp format

Timestamps in the queries should be specified using the ISO 8601 format.
The ISO 8601 format specifies the following notation: YYYY-MM-DDTHH:MI:SSTZ.
Where:

- YYYY The year as 4 digits
- MM The month as 2 digits
- DD The day of the month as 2 digits
- T Tag for the start of the time of day
- HH The hour of the day as 2 digits
- MI Minutes as 2 digits
- SS Seconds as 2 digits
- TZ Time zone in the notation “+HH:MI” or “-HH:MI”

Two examples of correct timestamps are given below:

- 2022-03-03T12:30:00+01:00
- 2021-02-28T23:55:00-05:00

Colofon:

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