# LineMetrics HTTP DATA - API Documentation

In order to use the LineMetrics Data-API, you have to create an API-Device for your Account on the LineMetrics Web-Application.

## Simple Data-API

For convenience, we have set up an alternative way to send in new data to our Http-API.

Note: you cannot read data with the Simple-API. For this you have to use the regular API (see below).

It is intended for use with devices or programming-libraries that are not capeable of handling the more complex REST Api.

Warning: This Simple API does not provide a secure channel to the LineMetrics Servers, so one should not use it to send in sensitive data.

Use of this Simple API is only suggested if you can not use the regular Data-API or your data is not sensitive (for example: outdoor-temperature)

### Send Data:

### http://bapi.linemetrics.com:8002/v1/{UUSEC}/store_value/{InputId}?val={Value} :

### *where*

**UUSEC** = String built from UUID followed by Token-Secret (see Api-Device Page)
**InputId** = The Id of an API-Input you want to send items to
**Value** = Your Value

## Url-Parameter

| name | description | values | mandatory |
|---|---|---|---|
| ts | Timestamp for the given value, if not set, the API Server will use a Timestamp<br><br>that it creates on its own. | UTC Unix Timestamp in milliseconds or seconds | no |
| val | Number-Value | Integer or Float (any bit-length) | yes |

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# LineMetrics Data-API

With the Data-API you can send in new values or read datastream - data.

Access to the API-Endpoints is secured with a handshake-token, which means

before you can send any requests you must connect to the API to get a Token.

### Get a Token

Token retrieval is as follows:

On every API-Device Page you will find a UUID and a Token-Secret.

To get a Token for the following requests, send a GET Request to

http://bapi.linemetrics.com:8002/v1/auth?basic=HASH

where HASH = BASE64(UUID+Token-Secret)

If the HASH is valid, the Response will be a JSON-String:

```
{"expires": in seconds, "token" : alphanumeric Token-String}
```

(If the HASH is not valid the API will return Status 403 "Forbidden")

Once a Token is generated, it can be used to send in new Datapoints to the API or to read existing Data from a Datastream.

For Authentication, you add an "Authorisation" - Header to your Request :

> *"Authorisation: {Token-String}"*

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## Possible Response Headers for all Requests :

| | Http-Status | Description |
|---|---|---|
| OK | 200 | Body in JSON or XML Format |
| OK | 204 | Request OK, no Body returned |
| Incorrect Parameters or Body Value | 400 | Params incorrect or missing |
| Time-Range too large | 400 | Time-Range too large<br>*(see Time-Range table for limits)* |
| Request Limit reached | 429 | too many requests |
| "Authorisation" - Header not given | 401 | Auth Token missing |
| Auth Token not valid | 401 | Auth Token invalid |
| Auth Token expired | 401 | Auth Token expired, request new one<br>*(the token may also expire, if you change the configuration of the API Device)* |
| No Access, Forbidden | 403 | Access to the specified Resource is not allowed or not possible.<br>*For example when you want to read data from a datastream, that is not accessible by the API-Device*. |
| Method Not Allowed | 405 | For example: Method is POST but GET is expected |
| Not Acceptable | 406 | Content-Type of Accept Header not supported |
| Internal Error | 500 | Internal Server Error |

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### Api-Endpoint Base-Url is http://bapi.linemetrics.com:8002/v1/

Note(for every Api Request): If the Request-Limit is reached for an API-Key, the API will return a Status-Header 429 "too many requests".

| Resource | Operation | Content-Type | Method | Request Body | URL | Returns |
|---|---|---|---|---|---|---|
| Store Values | Put | 'application/json', 'application/xml' | PUT, POST | JSON or XML -> see Description below | http://api.linemetrics.com/v1/put | HTTP HEADER only |

## Store Value Request-Body

The Request Body can be sent in JSON or XML Format:

Send a list of Items.

Possible Parameters for an Item:

| Name | Description | Type | optional |
|---|---|---|---|

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| | | | |
|---|---|---|---|
| val | Value | Float | no |
| ts | Unix UTC - Timestamp | Integer | yes |
| input | Id of the API Input | Integer | no |

The following Rules apply :

- If 'ts' is not given, the API Server will generate a Timestamp on its own
- 'input' must be given

**JSON Examples :**

**Send a list with 2 Items**

```
'{"items":[{"val":249,"ts":1404290851,"input":4563},{"val":3.156,"input":4562}]}'
```

# Read Datastream Data :

Data can be received in JSON or XML Format. To switch the output-Format set the "Accept" Header accordingly:

Possible Values for "Accept" Header : "application/json" or "application/xml". Default is JSON.

With the Data-API you can query Data from a given range of Time and optionally resolution or

you can query the Latest Value form a Datastream.

## Range-Query

URL: `http://bapi.linemetrics.com:8002/v1/data/{datastream_id}`

METHOD : GET

***Query-Parameters :***

| Name | Description | mandatory | default |
|---|---|---|---|
| time_from | Unix-Timestamp in seconds or milliseconds | yes | |
| time_to | Unix-Timestamp in seconds or milliseconds | no | current unix timestamp if omitted |
| tdb | Integer<br><br>Aggregation of data in milliseconds<br>Possible Values:<br>• 0 = Raw<br>• 60000 = Minute<br>• 3600000 = Hour<br>• 86400000 = Day | no | 0 |
| time_offset | Integer<br><br>Define timezone offset in milliseconds in order to correct timestamp of returned datapoints.<br>!!! Data will be queried in UTC anyway.<br>Possible Value: GMT+2 = 7200000 | no | 0 (UTC Time) |

Example:

http://bapi.linemetrics.com:8002/v1/data/16207/?time_from=1415791129980&time_to=1415798329980

The above example would read data from Datastream with id : 16207 with a tdb of 0 (Raw-Values) and a time-range of 2 hours.

**Time-Range Limits:**

| Aggregation in ms (tdb) | Range-Limit in seconds | Limit in Hours | Limit in Days |
|---|---|---|---|

| | | | |
|---|---|---|---|
| 0 (Raw) | 10800 | 3 | |
| 60000 (Minute) | 43200 | 12 | |
| 3600000 (Hour) | | 744 | 31 |
| 86400000 (Day) | | | 372 |

## Result Description

Result Construct contains data container, which contains a list of datapoints. Each datapoint is represented by at least a timestamp (index 0) and a value (index 1).
If the datastream is also configured to store minimum and maximum (CompressionMethod = Average), then index 2 + 3 also contain the minimum and the maximum value.

## Example Result (JSON)


```
{"data":[[1394549940173,60.0],[1394549939650,32.0],[1394549939123,51.0],[1394549938
545,95.0],[1394549937935,73.0],[1394549937078,45.0],[1392795060000,24.9154,-1.83,35
.26]]}
```


## Last-Value Query:

URL: `http://bapi.linemetrics.com:8002/v1/lastvalue/{datastream_id}`

METHOD : GET

***Query-Parameters :***

| Name | Description | mandatory | default |
|---|---|---|---|
| tdb | Integer<br><br>Aggregation of data in milliseconds<br>Possible Values:<br>• 0 = Raw<br>• 60000 = Minute<br>• 3600000 = Hour<br>• 86400000 = Day | no | 0 |
| time_offset | Integer<br><br>Define timezone offset in milliseconds in order to correct timestamp of returned datapoints.<br>!!! Data will be queried in UTC anyway.<br>Possible Value: GMT+2 = 7200000 | no | 0 |

## Result Description

Result construct contains data container, which contains a map with the latest dataitem. Each datapoint is represented by at least a timestamp (key: timestamp) and a value (key: value).
If the datastream is also configured to store minimum and maximum (CompressionMethod = Average), then the result also contains a key for the minimum/maximum value.

## Example Result (JSON)


```
{"data":{"timestamp":1404388606092,"value":5.0349936,"min":5.0349936,"max":5.034993
6}}
```