

Device Registration

When a KeWee Energy Meter first connects to the internet, it needs to register with a server to obtain an authentication token that verifies its identity for future interactions. The meter sends an HTTP Post request to the server with some identifiers, as well as the user account to assign itself to.

The HTTP Post request is sent to `http://10.0.0.10/device/register/index.php`, where the IP Address 10.0.0.10 can be substituted with a local or public IP Address, or alternatively a domain name.

The HTTP Post request must contain the following key-value pairs:

serial

A 10-digit base 10 number matching the Unique Serial Number of the meter.

macaddress

A 12-digit base 16 number matching the MAC Address of the meter.

username

A 64-character (maximum) string for the username to assign the meter to.

```
POST /device/register/index.php HTTP/1.1
Host: 10.0.0.10
Accept-Encoding: identity
Content-Type: application/x-www-form-urlencoded
Content-Length: 55

serial=1111111111&macaddress=1a1a1a1a1a1a&username=Demo
```

If registration with the server is successful, you will receive a string that begins with success and ends with your authentication token, the value you use going forward to verify that you are the meter you claim you are (along with Serial Number, etc). Below, an example of a response from the server that was a successful registration is shown. Otherwise, the message received will not begin with "Success". The failure string may be a helpful message for debugging what went wrong or presenting the user with an informative error message from the server.

```
HTTP/1.1 200 OK
Server: nginx/X.XX.XX (Ubuntu)
Date: Day, DD Mon YYYY HH:mm:ss GMT
Content-Type: text/html; charset=UTF-8
Transfer-Encoding: chunked
Connection: keep-alive

Success:TheTokenYouGetDuringRegistration
```

Device Data Upload

Once a KeWee Energy Meter is connected to a server, it needs to upload data samples. The meter enters a loop of creating HTTP Post messages containing the data to upload, along with the authentication necessary to do so.

The HTTP Post request is sent to <http://10.0.0.10/device/upload/index.php>, where the IP Address 10.0.0.10 can be substituted with a local or public IP Address, or alternatively a domain name.

The HTTP Post request must contain the following key-value pairs:

serial

A 10-digit base 10 number matching the Unique Serial Number of the meter.

macaddress

A 12-digit base 16 number matching the MAC Address of the meter.

token

A 32-character encoded string of the Authentication Token, received from the server during the registration phase.

data_voltage

An unsigned integer representing voltage in millivolts RMS.

data_current

An unsigned integer representing current in microamps RMS.

data_powerfactor

An unsigned integer representing power factor as a percentage from 0 through 100.

```
POST /device/upload/index.php HTTP/1.1
Host: 10.0.0.10
Accept-Encoding: identity
Content-Type: application/x-www-form-urlencoded
Content-Length: 141

serial=1111111111&macaddress=1a1a1a1a1a1a1a1a&token=TheTokenYouGotDuringRegistration&data_voltage=120000&data_current=2000000&data_powerfactor=95
```

On success, the server will acknowledge the upload with a reply of a string stating "Data Saved." See below for an example successful response.

```
HTTP/1.1 200 OK
Server: nginx/X.XX.XX (Ubuntu)
Date: Day, DD Mon YYYY HH:mm:ss GMT
Content-Type: text/html; charset=UTF-8
Transfer-Encoding: chunked
Connection: keep-alive

Data Saved.
```