Open Source API Clients Description

Revision History

Name	Date	Reason For Changes	Version
Stefan Voit	11.01.2013	Create	0.a
Stefan Voit	15.01.2013	Added type=powerdogs call	0.b

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References

```
PowerDog®: www.power-dog.eu
PowerDog API: api.power-dog.eu
PowerDog API Chart Client: api.power-dog.eu/client/index.php
PowerDog API CSV Client: api.power-dog.eu/client/index_plain.php
PowerDog API Generator: api.power-dog.eu/generator
ecodata GmbH: www.eco-data.de
```

Notes

This document can be found under the following location:

```
http://api.power-dog.eu/documentation
```

The API

The PowerDog API is a server side API that allows users to access their PowerDog Device Data directly from the server. The API can be access using the standardized XMLRCP Protocol (http://de.wikipedia.org/wiki/XML-RPC) and is located under http://api.power-dog.eu/ (more precise: http://api.power-dog.eu:80/index.php).

The API Client

To access the API a client is required. Ecodata GmbH provides several different clients for certain languages as open source for its customers. This document describes the “Chart Client” and the “CSV Client”. Both of those clients are PHP Implementations and base on the same source code. While the chart client’s task is to provide a visual representation of the data, the intention of the CSV client is to provide an interface for external applications such as phone apps, external analysis programs or even Microsoft Excel.

The API Clients interface the XMLRPC API as defined in the “PowerDog API Description”, collect and integrate the data to print it out in a different, more basic format. The intention is to make the data easier to work with for users and also to speed up the implementation process.

Authorization (API) Key

In order to request data from the API it is required to hold a valid “api key”. This key is a unique identifier for a certain user. They key can be acquired by calling http://api.power-dog.eu/client/getapikey.php?email=EMAIL&pass_md5=MD5_PASS with the users email address and the md5 hashed password. Once this key is acquired it will be valid until the user changes its email address. All further calls hold use the api key instead of email/password to authorize calls. This means that once the api key is acquired the login information are not required anymore in external applications, it is enough and recommended to store only the api key. All Arguments must be passed in lowercase.

Example call for acquiring an API key:

```
http://api.power-dog.eu/client/getapikey.php?email=gerhard.huetter@eco-
data.de&pass_md5=f2312ad09f5ecffc827555988ced7b4d
```

Valid Reply:

```
API_KEY:90f47b75edc159ba8333a16ef37bd431;
```

In this example we received a valid api key of: “90f47b75edc159ba8333a16ef37bd431”

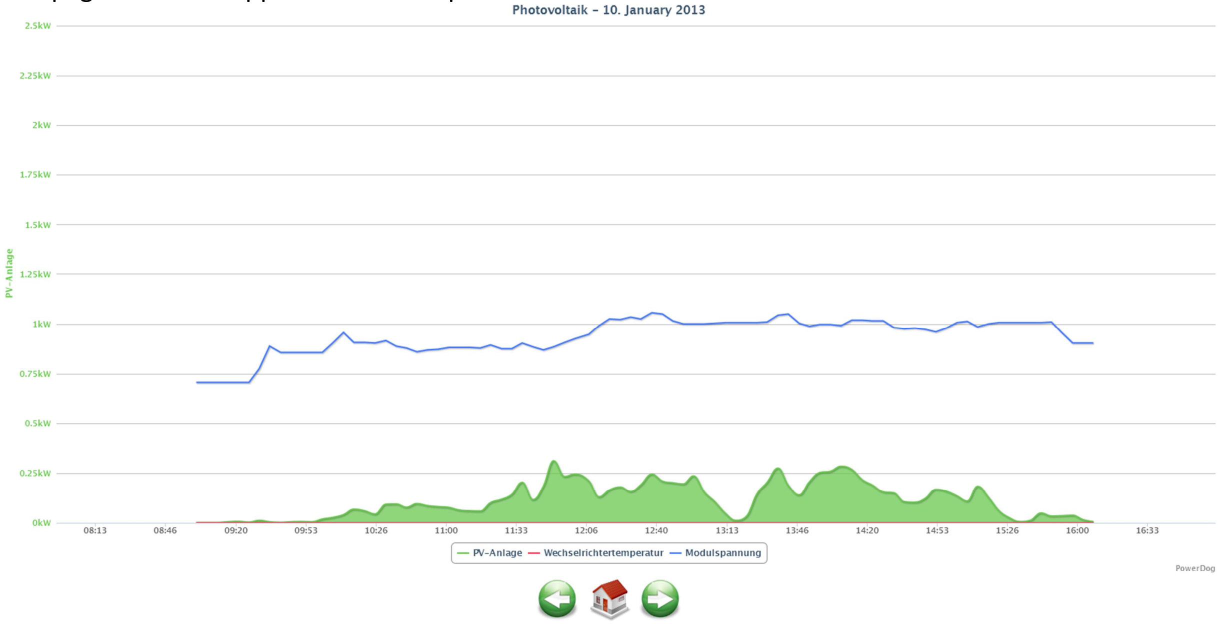
To extract they key split the reply at “:” and use the 2nd chunk. If the first chunk is not “API_KEY” the reply is invalid.

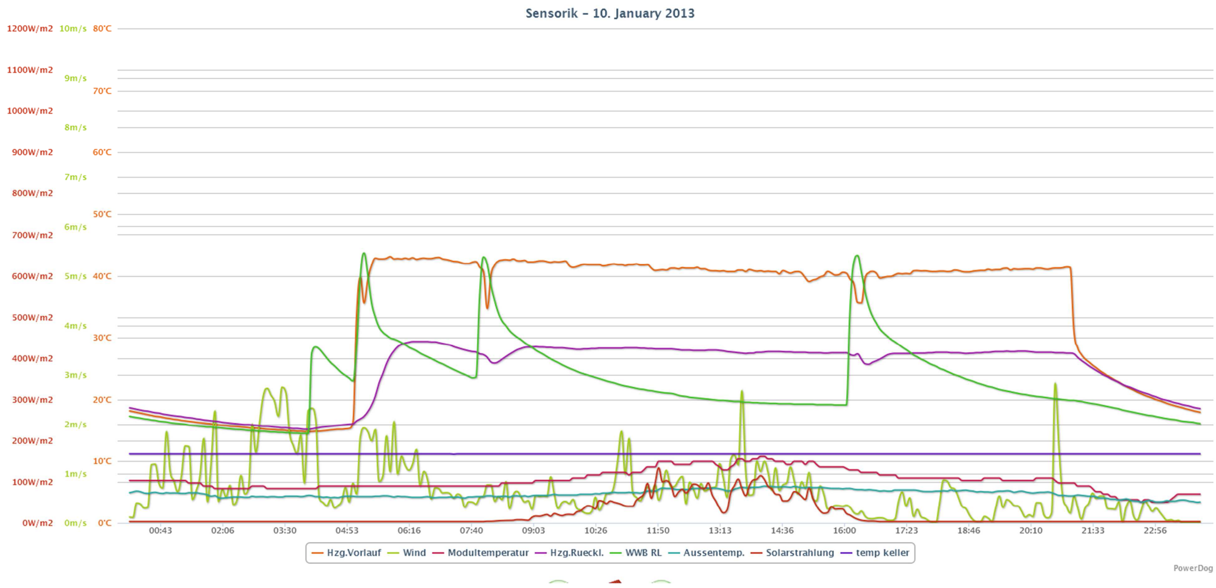
Error (Authentication failed) Reply Example:

```
ERROR_AUTH
```

The Chart Client

The Chart Client is the version of the client that will print user defined charts that can be integrated in external webpages and web applications. Examples for such charts are:





Location

The client is located under http://api.power-dog.eu/client/ or more specific http://api.power-dog.eu/client/index.php. an example call looks like

```
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&type=pv&powerdog=11&date=2013-01-10.
```

URL Arguments & Encoding

The actual printed chart can be modified using the URL arguments that the application can pass to the client. An argument can be passed by extending the URL by a certain string. To do so take the base url which is http://api.power-dog.eu/client/index.php and extend it with the required argument. An example for this is the api key which has to be passed using the key= argument. A resulting URL with the key argument would be: http://api.power-dog.eu/client/index.php?key=90f47b75edc159ba8333a16ef37bd431. You can pass more than one argument by adding it using the "&" sign. For example http://api.power-dog.eu/client/index.php?key=90f47b75edc159ba8333a16ef37bd431&date=2012-11-09 will use the key and the date as the second argument. This can be done as often as required. Please see http://en.wikipedia.org/wiki/Query_string for more information.

Valid Arguments:

At this point the following arguments are valid:

type=ChartType

The type=ChartType argument allows you to select the content of the chart. Valid ChartType are:

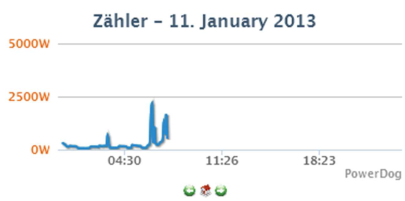
- "pv" – Photovoltaic Day Chart
- "pv-month" – Photovoltaic Month Chart
- "pv-year" – Photovoltaic Year Chart
- "pv-global" – Photovoltaic Global Chart
- "sensor" – Sensor Day Chart
- "counter" – Counter Day Chart

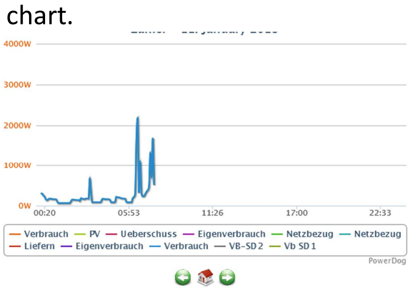
Please see "Chart Types" below for previews on the chart.
Examples are:

```
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&type=pv
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&type=pv-month
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&type=pv-year
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&type=pv-global
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&type=sensor
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&type=counter
```

hide_legend=1

This will remove the legend from the chart.

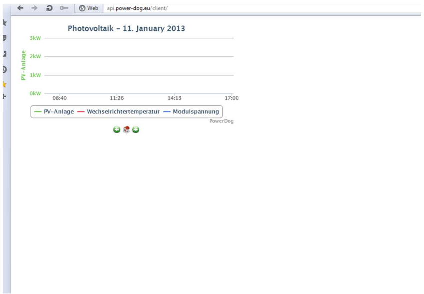




The left picture makes use of hide_legend=1, the right has the legend enabled.
Example:

```
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&hide_legend=1
```

width=xxx% - height=xxx%
width=xxx% and height=xxx% allows you to modify the size of the chart. You can either pass % or pixel (xx px) to those 2 parameters.

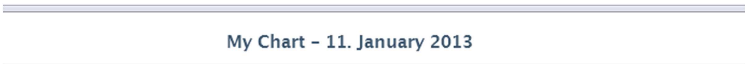


Examples:

```
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&type=pv&width=30%&height=30%
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&type=pv&width=300px&height=300px
```

The default size is 100% for both width and height to fix the parent window.

name=ChartName
the Name parameter allows you to change the default chart headline.



Examples:

```
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&type=pv&name=My%20Chart
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&type=pv&name=PV-Plant1
```

powerdog=PowerDogID
The powerdog=PowerDogID parameter allows you to select which PowerDogs data the chart should display. Please note that you can only use the ids of your own PowerDogs or PowerDogs which are set to “public”.

Examples:

```
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&type=pv&powerdog=11
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&type=pv&powerdog=61
```

date=Date

The date=Date parameter is to set the data the chart should display. Please note that the format MUST always be **YYYY-MM-DD**, for example 2013-01-11 for the 11th of January 2013. Even if you are using type=pv-year you still have to preserve this format. For example if you want to see the month bar charts of 2012 you need to pass 2012-01-01, it is INVALID to pass just "2012".

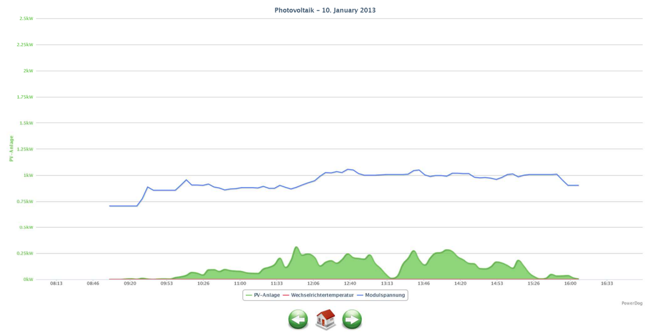
Example:

```
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&type=pv&date=2013-01-10
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&type=pv-month&date=2012-02-01
http://api.power-dog.eu/client/?key=90f47b75edc159ba8333a16ef37bd431&type=pv-month&date=2012-03-01
```

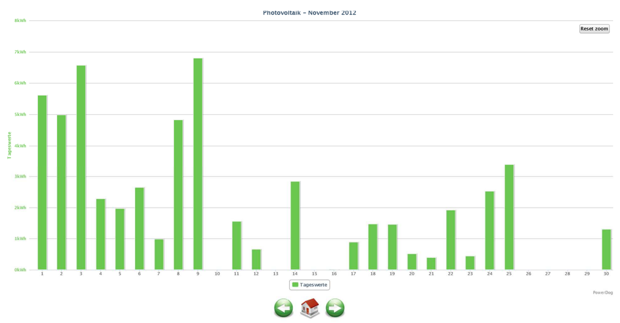
Chart Types

The Chart Client can print the following charts at this time:

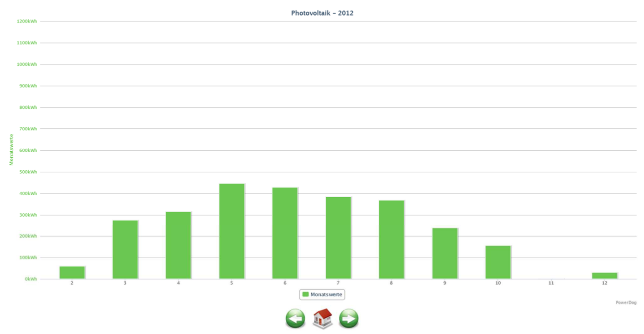
- Photovoltaic Day Chart (type=pv):



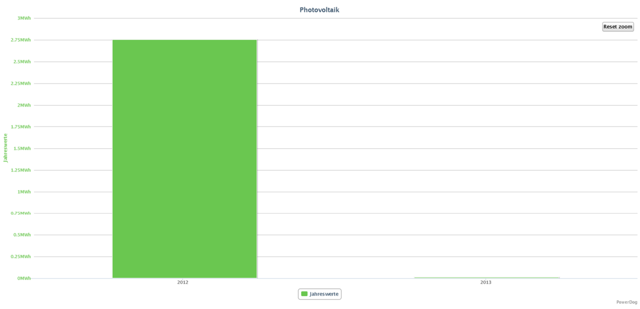
- Photovoltaic Month Chart:



- Photovoltaic Year Chart:

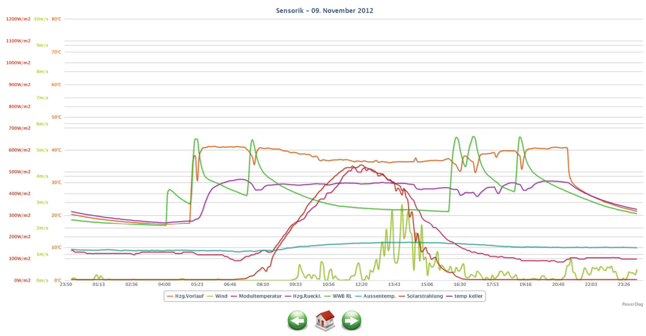


- Photovoltaic Global Chart:

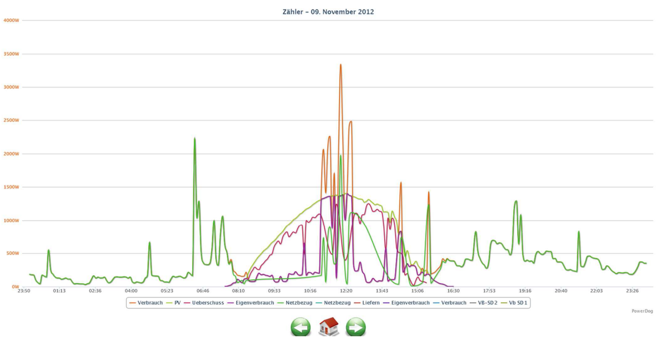


-

Sensor Day Chart:



- Counter Day Chart:



Which chart gets printed is defined by the type=CHART_TYPE argument.

The CSV Client

The CSV or plain text client will not print charts but the data of the chart in csv format. The CSV format is an easy to interpret plain text format that does not require as much decoding as for example XML. Also Microsoft Excel or OpenOffice Spreadsheets can open CSV. The main purpose of this client is to provide an easy to use interface for external applications.

Location

The client is located under http://api.power-dog.eu/client/index_plain.php an example call looks like

```
http://api.power-dog.eu/client/index_plain.php?key=90f47b75edc159ba8333a16ef37bd431&type=pv&powerdog=11&date=2013-01-10.
```

Valid Arguments:

At this point the only valid arguments are type and date.

date=Date

The date=Date parameter is to set the date for the reply dataset. Please note that the format MUST always be **YYYY-MM-DD**, for example 2013-01-11 for the 11th of January 2013. Even if you are using type=pv-year you still have to preserve this format. For example if you want to see the month bar charts of 2012 you need to pass 2012-01-01, it is INVALID to pass just “2012”.

Example:

```
http://api.power-dog.eu/client/index_plain.php?key=90f47b75edc159ba8333a16ef37bd431&type=pv&date=2013-01-10
http://api.power-dog.eu/client/index_plain.php?key=90f47b75edc159ba8333a16ef37bd431&type=pv-month&date=2012-02-01
http://api.power-dog.eu/client/index_plain.php?key=90f47b75edc159ba8333a16ef37bd431&type=pv-month&date=2012-03-01
```

type=ChartType

The type=ChartType argument allows you to select the content of the chart. Valid ChartType are:

- “pv” – Photovoltaic Day Chart
- “pv-month” – Photovoltaic Month Chart
- “pv-year” – Photovoltaic Year Chart
- “pv-global” – Photovoltaic Global Chart
- “sensor” – Sensor Day Chart
- “counter” – Counter Day Chart
- “powerdogs” – Shows a list of PowerDogs of the user and the attached Inverters/Sensors. Use this call to gather the timezone and the ids for powerdog=PID.

Basically the resulting dataset is the same as the one from the Chart Client. The difference is that the reply is CSV instead of a chart now.

Examples:

```
Day Chart:
http://api.power-dog.eu/client/index_plain?key=90f47b75edc159ba8333a16ef37bd431&date=2012-07-12&type=pv

Day Bars of Month:
http://api.power-dog.eu/client/index_plain?key=90f47b75edc159ba8333a16ef37bd431&date=2012-07-12&type=pv-month

Month Bars of Year:
http://api.power-dog.eu/client/index_plain?key=90f47b75edc159ba8333a16ef37bd431&date=2012-07-12&type=pv-year

Year Bars:
http://api.power-dog.eu/client/index_plain?key=90f47b75edc159ba8333a16ef37bd431&date=2012-07-12&type=pv-global

Sensors:
http://api.power-dog.eu/client/index_plain?key=90f47b75edc159ba8333a16ef37bd431&date=2012-07-12&type=sensor

Counters:
http://api.power-dog.eu/client/index_plain?key=90f47b75edc159ba8333a16ef37bd431&date=2012-07-12&type=counter
```

In the Reply section you can see the reply data of some of the calls listed here.

Reply

The Reply of a call to the CSV Client always start whit the header:

```
PROTOCOL;VERSION;CLIENT;CLIENT_VERSION;CLIENT_LICENSE;POWERDOG_API_VERSION
POWEWRDOG_PLAIN_TEXT_CALL;1.0;ecodata GmbH - PowerDog Web API Client - Plain Text
Version;1.1;LGPL;1.0
RESULT
OK
```

The “**OK**” in the header indicates that the reply is valid and can be processed

Followed by the data

```
CHARTS
PAC,TEMPERATURE,UDC

NAME;MAX;UNIT
PAC;2500;W

DateTime;Value
2013-01-10 07:00:00 UTC;null
2013-01-10 08:01:00 UTC;1
-- omitted --
```

The Data structure in the reply is always the same for any call except the type=powerdogs one.

The lines:

```
CHARTS
PAC,TEMPERATURE,UDC
```

Tells which charts are present in the Dataset

The Lines

```
NAME;MAX;UNIT
PAC;2500;W

DateTime;Value
2013-01-10 07:00:00 UTC;null
2013-01-10 08:01:00 UTC;1
```

Represent the actual chart, in this case PAC, with the maximum 2500W and the Unit W (Watt).

```
2013-01-10 07:00:00 UTC;null
2013-01-10 08:01:00 UTC;1
```

are the data points in the chart. Please note that the timestamp is UTC, which means it has to be shifted in the actual device time. Also note that the DateTime format change according to the type=ChartType argument.

type=powerdogs Reply

The type=powerdogs call returns a CSV formatted list of PowerDogs which are assigned to a certain user. This call also includes the inverters, sensors and counters attached to the different PowerDogs including all relevant parameters. This call should be performed as part of the initialization to acquire the required information.

```
CALL:
Requesting PowerDog Information:
http://api.power-
dog.eu/client/index_plain?key=90f47b75edc159ba8333a16ef37bd431&type=powerdogs
```

```
REPLY:

PROTOCOL;VERSION;CLIENT;CLIENT_VERSION;CLIENT_LICENSE;POWERDOG_API_VERSION
POWEWRDOG_PLAIN_TEXT_CALL;1.0;ecodata GmbH - PowerDog Web API Client - Plain Text
Version;1.1;LGPL;1.0
RESULT
OK

POWERDOG_ID;NAME;DESCRIPTION;ADDRESS_ZIP;ADDRESS_CITY;PUBLIC;TIMEZONE;INVERTERS
11;Familie Hütter;Anlage Familie Hütter;5280;Braunau;1;Europe/Vienna;26161
61;Bauhof Salzhalle;diese Anlage ist keinem User
zugeordnet;94060;Pocking;1;Europe/Vienna;1131,1141,1151,1161
211;Moosmüller Zentrale;hier Kommentar
eintragen;84375;Kirchdorf;1;Europe/Vienna;2341,2351,2361,2371,2381,2391,2401,2411,2421,2431,
2441,2451,2461
481;Karthalle;diese Anlage ist keinem User zugeordnet;84359;Simbach am
Inn;1;Europe/Vienna;2771,2781
561;Altenbuchner;hier Kommentar
eintragen;84533;Haiming;1;Europe/Vienna;3091,3101,3111,3121,3131,3141,9421,3151,3161,3171,31
81,3191,3201,3211,3221
971;Wenk;hier Kommentar
eintragen;94121;Salzweg;1;Europe/Vienna;6391,6401,6411,6421,6531,6541,6551,6561,6591,6601,66
11,6621,6631,6641,6651,6661,6671,6681,6931,6941,6951,6961,6971,6981,6991
1421;Loher;diese Anlage ist keinem User zugeordnet;84372;Bad
Füssing;1;Europe/Vienna;10791,10801,10811,10821,10831,13411,13421,13431,13441
2101;PowerDog-Büro Ecodata;diese Anlage ist keinem User
zugeordnet;84359;Simbach;1;Europe/Vienna;28131

INVERTER_ID;POWERDOG_ID;NAME;BUS;ADDRESS;MANUFACTOR;MODULFIELD;MODULFIELD_NAME;CAPACITY;SERI
ALNO;TYPE;STRINGCOUNT;STRINGNUM#CAPACITY
26161;11;WR 1;1;2;sma;1;Haus;3000;2000049568;WR25;1;1#3000
-- omitted –
28131;2101;wr1;1;2;danfoss;1;haus;6500;" 121302N312";Danfoss TLX 8 kW;2;1#3000,2#3500

SENSOR_ID;POWERDOG_ID;KEY;TYPE;NAME;MAX
26221;11;onewire_1327954814;Temperature;Hzg.Vorlauf;70
26231;11;impulsesensor_1327954862;Speed_ms;Wind;10
-- omitted –
27451;2101;temeraturesensor_1353488882;Temperature;Temp. Fussboden;30

COUNTER_ID;POWERDOG_ID;KEY;TYPE;NAME;MAX;HARDWARE
26171;11;impulsecounter_1327954495;Energy;Verbrauch;3000;Impulse
26181;11;pv_global;Energy;PV;3000;pv_global
-- omitted –
28721;2101;impulsecounter_1353949572;Energy;Verbrauch;4000;Impulse
```

Please note that the TIMEZONE information of the PowerDog is the timezone the Data of the Day Charts needs to be shifted.

Other Reply Examples:

```
CALL:
Day Chart:
http://api.power-dog.eu/client/index_plain?key=90f47b75edc159ba8333a16ef37bd431&date=2012-07-12&type=pv
```

```
REPLY:

PROTOCOL;VERSION;CLIENT;CLIENT_VERSION;CLIENT_LICENSE;POWERDOG_API_VERSION
POWEWRDOG_PLAIN_TEXT_CALL;1.0;ecodata GmbH - PowerDog Web API Client - Plain Text
Version;1.1;LGPL;1.0
RESULT
OK

CHARTS
PAC,TEMPERATURE,UDC

NAME;MAX;UNIT
PAC;2500;W

DateTime;Value
2012-07-12 03:00:00 UTC;null
2012-07-12 05:57:42 UTC;2
2012-07-12 06:02:41 UTC;17
-- omitted --
2012-07-12 20:35:38 UTC;16
2012-07-12 20:40:25 UTC;1

NAME;MAX;UNIT
TEMPERATURE;80;°C

DateTime;Value
2012-07-12 03:00:00 UTC;null
2012-07-12 05:57:42 UTC;0
2012-07-12 06:02:41 UTC;0
-- omitted –
2012-07-12 20:35:38 UTC;0
2012-07-12 20:40:25 UTC;0

NAME;MAX;UNIT
UDC;800;V

DateTime;Value
2012-07-12 03:00:00 UTC;null
2012-07-12 05:57:42 UTC;227
2012-07-12 06:02:41 UTC;226
-- omitted --
2012-07-12 20:40:25 UTC;265

NAME;MAX;UNIT
PDC;2500;V

DateTime;Value
2012-07-12 03:00:00 UTC;null
2012-07-12 05:57:42 UTC;14
2012-07-12 06:02:41 UTC;37
2012-07-12 06:07:41 UTC;30
-- omitted --
2012-07-12 20:30:24 UTC;52
```

```
CALL:
Day Bars of Month:
http://api.power-dog.eu/client/index_plain?key=90f47b75edc159ba8333a16ef37bd431&date=2012-
07-12&type=pv-month
```

```
REPLY:

PROTOCOL;VERSION;CLIENT;CLIENT_VERSION;CLIENT_LICENSE;POWERDOG_API_VERSION
POWEWRDOG_PLAIN_TEXT_CALL;1.0;ecodata GmbH - PowerDog Web API Client - Plain Text
Version;1.1;LGPL;1.0
RESULT
OK

CHARTS
PAC

NAME;MAX;UNIT
EAC;40000;Wh

DateTime;Value
01;15043
02;15153
03;4518
04;17634
05;12808
06;11325
07;11974
08;18100
09;11879
10;16072
11;10320
12;7894
13;9644
14;6057
15;7349
16;12985
17;9756
18;17725
19;13240
20;6825
21;7609
22;11293
23;19053
24;18715
25;6782
26;14492
27;17937
28;11700
29;11506
30;12094
31;17082
```

```
CALL:
Month Bars of Year:
http://api.power-dog.eu/client/index_plain?key=90f47b75edc159ba8333a16ef37bd431&date=2012-07-12&type=pv-year
```

```
REPLY:

PROTOCOL;VERSION;CLIENT;CLIENT_VERSION;CLIENT_LICENSE;POWERDOG_API_VERSION
POWEWRDOG_PLAIN_TEXT_CALL;1.0;ecodata GmbH - PowerDog Web API Client - Plain Text
Version;1.1;LGPL;1.0
RESULT
OK

CHARTS
PAC

NAME;MAX;UNIT
EAC;1200000;Wh

DateTime;Value
02;59107
03;274458
04;315231
05;446268
06;426580
07;384564
08;366916
09;236562
10;155552
11;-130419000
12;30573
```

```
CALL:
Year Bars:
http://api.power-dog.eu/client/index_plain?key=90f47b75edc159ba8333a16ef37bd431&date=2012-07-12&type=pv-global
```

```
REPLY:

PROTOCOL;VERSION;CLIENT;CLIENT_VERSION;CLIENT_LICENSE;POWERDOG_API_VERSION
POWEWRDOG_PLAIN_TEXT_CALL;1.0;ecodata GmbH - PowerDog Web API Client - Plain Text
Version;1.1;LGPL;1.0
RESULT
OK

CHARTS
PAC

NAME;MAX;UNIT
EAC;14400000;Wh

DateTime;Value
2012;2751260
2013;9982
```

```
CALL:
Sensors:
http://api.power-dog.eu/client/index_plain?key=90f47b75edc159ba8333a16ef37bd431&date=2012-
07-12&type=sensor
```

```
REPLY:

PROTOCOL;VERSION;CLIENT;CLIENT_VERSION;CLIENT_LICENSE;POWERDOG_API_VERSION
POWEWRDOG_PLAIN_TEXT_CALL;1.0;ecodata GmbH - PowerDog Web API Client - Plain Text
Version;1.1;LGPL;1.0
RESULT
OK

CHARTS
Sensor_1,Sensor_2,Sensor_3,Sensor_4,Sensor_5,Sensor_6,Sensor_7,Sensor_8

NAME;MAX;UNIT;VISUAL_NAME
Sensor_1;80;°C;Hzg.Vorlauf

DateTime;Value
2012-07-11 22:00:00 UTC;null
2012-07-11 22:03:02 UTC;20.9375
2012-07-11 22:07:42 UTC;20.875
-- omitted --
2012-07-12 21:55:41 UTC;20.875
2012-07-12 22:00:00 UTC;null

NAME;MAX;UNIT;VISUAL_NAME
Sensor_2;10;m/s;Wind

DateTime;Value
2012-07-11 22:00:00 UTC;null
2012-07-11 22:07:42 UTC;0.0285527
-- omitted --
2012-07-12 21:55:41 UTC;0.937808
2012-07-12 22:00:00 UTC;null

NAME;MAX;UNIT;VISUAL_NAME
Sensor_3;80;°C;Modultemperatur

DateTime;Value
2012-07-11 22:00:00 UTC;null
2012-07-11 22:03:02 UTC;24.5
-- omitted --
2012-07-12 21:55:41 UTC;24.12
2012-07-12 22:00:00 UTC;null

NAME;MAX;UNIT;VISUAL_NAME
Sensor_4;80;°C;Hzg.Rueckl.

DateTime;Value
2012-07-11 22:00:00 UTC;null
2012-07-11 22:03:02 UTC;21.0625
-- omitted --
2012-07-12 21:55:41 UTC;21
2012-07-12 22:00:00 UTC;null


-- omitted --
```