SMA inverter plugin

Document version 1, February 2016. By A-Lurker.

Plugin code version 0.51
http://forum.micasaverde.com/index.php/topic,36069.0.html

Acknowledgements and license

Vera code originated by ucrepuscule and is based on SBFspot code.

Modifications, additions, PVOutput.org send and plugin code by a-lurker.

http://sbfspot.codeplex.com/
http://forum.micasaverde.com/index.php?topic=23657.0

SBFspot - Yet another tool to read power production of SMA® solar inverters
(c)2012-2015, SBF

Latest version found at https://sbfspot.codeplex.com

Background

This plugin is designed to suit the SMA range of solar inverters but has only been tested on a Sunny TriPower. Refer to:

http://www.sma.de/en/products/solarinverters.html

Connection to Vera

The meter is connected to Vera using the inverter's LAN interface. This plugin does not support a BlueTooth connection. Only one inverter is allowed on the local LAN.

What the plugin does and doesn't

The SMA protocol has been reversed engineered and is not overly clear. Consequently, it can be difficult to ensure, that all works as intended.

The plugin is designed to **report some data and not write any**. While many commands exist and some have been coded (refer to L_SMA_inverter1.lua), only four variables are fully supported:

- Power
- kWh to-day
- kWh all time
- Inverter temperature

Additionally reporting to PVOutput.org is supported.

Installation

This plugin has been tested using the Vera U17 interface and Firefox 44.0 only. It should work under UI5. The installation for UI7 is as follows:

Go to UI7-->APPS-->Develop Apps-->Luup files and upload the five files.

Select the "Create device" button on the same page. Enter "D_SMA_inverter1.xml" into the "Upnp Device Filename" entry box and select the "Create device" button immediately below. Do a few reloads using the "Reload" button.

Once the device can be seen in the User Interface and after sufficient "Reloads" and browser refreshes (generally F5); the "Advanced" tab will have entry boxes for the following:

DebugEnabled

Debugging can be turned on and off using this variable; off = 0, on = 1. It defaults to off.

PVOutputApiKey

Defaults to blank.

PVOutputSystemID

Defaults to blank.

PollInterval

Defaults to 300 secs (5 mins) and cannot be set any quicker than this. It can be set to a slower rate if desired.

PVOutput.org

The plugin can optionally report to PVOutput.org. To do so you need an API key and System ID. Refer to PVOutput.org for more information. Enter the key and the ID into the Vera SMA device and restart the Luup engine and refresh browser. Reporting to PVOutput will then start. If problems occur, enable debugging and look in the Vera log file for clues.

Inverter IP address and serial number

ip

The plugin uses multicasting to automatically identify the inverter's IP address.

Serial number

The inverter's serial number is typically a twelve digit decimal number that should be evident on the inverter's housing. It is communicated as the equivalent hex number by the SMA software. Note however the plugin uses a catch all serial number, so no serial number needs to be specified. Refer to L_SMA_inverter1.lua:

```
local ANY_DEST_SUSY_ID = 0xffff
local ANY_DEST_SERIAL_NUMBER = 0xffffffff
```

Inverter time

The plugin does not require the inverter time to be set, as it uses Vera time. However, the plugin contains an action to set the inverter time. This action can only be used during day time ie when the inverter is awake/producing. The messaging behind this action is not well understood and it may not work as intended. Only use if desperate.

```
luup.call_action("urn:a-lurker-com:serviceId:SMA_inverter1", "SetInverterTime", {},
SMA_INVERTER_ID)
```