

1. My Project

- Bought the Nooelec SDR
- Installed the mosquito MQTT add-on and integrations into HA
- Using a Raspberry Pi 4
- Ran rtl_433 specifying a mosquito output (as described below)

1.1 Rtl_433

https://github.com/merbanan/rtl_433

Actively being worked on.

This software seems to decode a zillion (actually 251) different protocols (Ford & other TPMS, door locks, pool temperature sensors etc etc) – as well as Efergy.

Is written in portable C and suitable for the Pi

rtl_433 (despite the name) is a generic data receiver, mainly for the 433.92 MHz, 868 MHz (SRD), 315 MHz, 345 MHz, and 915 MHz ISM bands.

The official source code is in the https://github.com/merbanan/rtl_433/ repository. For more documentation and related projects see the <https://triq.org/> site.

It works with [RTL-SDR](#) and/or [SoapySDR](#). Actively tested and supported are Realtek RTL2832 based DVB dongles (using RTL-SDR) and LimeSDR ([LimeSDR USB](#) and [LimeSDR mini](#) engineering samples kindly provided by [MyriadRf](#)), PlutoSDR, HackRF One (using SoapySDR drivers), as well as SoapyRemote.

1.1.1 Installation

- `sudo apt-get install rtl-433`

1.1.2 Running / Testing

`rtl_433 -R 36 -f 433485000` (from <https://github.com/Tugzrida/efergy-sdr>)

Spat-out packets from transmitter IDs:

11086 = general consumption

65141 = aircon ?

33061 = HWS

My Efergy sensor IDs are: 740907, 861569, 816638

1.1.3 Mosquitto output

The Readme at https://github.com/merbanan/rtl_433 tells how to output to MQTT

`-F mqtt://10.1.1.20,user=mqttclient,pass=123steer,retain=1,base=Efergy`

Complete runstring:

`rtl_433 -R 36 -f 433485000 -F mqtt://10.1.1.20,user=mqttclient,pass=123steer,retain=1`

Now to change the topic:

`rtl_433 -R 36 -f 433485000 -F mqtt://10.1.1.20,user=mqttclient,pass=123steer,retain=1,events=Efergy[/id]`

This runstring is put in the file `/etc/rc.localcd ..`

1.1.4 Efergy Data Frame Format

From https://github.com/merbanan/rtl_433/blob/master/src/devices/efergy_e2_classic.c

This electricity meter periodically reports current power consumption on frequency ~433.55 MHz. The data that is transmitted consists of 8 bytes:

- Byte 1: Start bits (00)
- Byte 2-3: Device id (*looks like byte 2 is LSB and Byte 3 is MSB*)
- Byte 4: Learn mode, sending interval and battery status (*learn is bit 8, battery is bit bit 7, interval = bits 5 & 6 plus 1 multiplied by 6*)
- Byte 5-7: Current power consumption
 - Byte 5: Integer value (High byte)
 - Byte 6: integer value (Low byte)
 - Byte 7: exponent (values between -3? and 4?)
- Byte 8: Checksum

Power calculations come from Nathaniel Elijah's program EfergyRPI_001.

Test codes:

- Current 4.64 A: {65}0cc055604a41030f8
- Current 185.16 A: {65}0cc055605c9408798

2. Home Assistant

1. Install the MQTT Explorer add-on to see what MQTT data is being transmitted. It will also show you the serial numbers for the Efergy transmitters that will be needed below when you define the sensors (from memory, the serial number is also written on an integrated circuit if you pull the Efergy transmitter apart)
2. Manually define the sensors in configuration.yaml eg:

```
mqtt:
  sensor:
    # Efergy General consumption
    - name: "Efergy Gen Consumption Direct Amps"
      state_topic: "Efergy/11086"
      unit_of_measurement: "A"
      suggested_display_precision: 2
      value_template: "{{ value_json.current }}"
    - name: "Efergy Gen Consumption Direct Battery"
      state_topic: "Efergy/11086"
      value_template: "{{ value_json.battery_ok }}"
    - name: "Efergy Gen Consumption Direct Update"
      state_topic: "Efergy/11086"
      value_template: "{{ value_json.time }}"
    - name: "Efergy Gen Consumption Direct Interval"
      state_topic: "Efergy/11086"
      value_template: "{{ value_json.interval }}"
    # Efergy Aircon
    - name: "Efergy Aircon Direct Amps"
      state_topic: "Efergy/65141"
      unit_of_measurement: "A"
      value_template: "{{ value_json.current }}"
    - name: "Efergy Aircon Direct Battery"
      state_topic: "Efergy/65141"
      value_template: "{{ value_json.battery_ok }}"
    - name: "Efergy Aircon Direct Update"
      state_topic: "Efergy/65141"
      value_template: "{{ value_json.time }}"
    - name: "Efergy Aircon Direct Interval"
```

```
state_topic: "Efergy/65141"  
value_template: "{{ value_json.interval }}"
```