

BelgianSmartMeter2Domoticz



Goal

- Integrate Belgian Sagemcom S211 smart meter in domoticz
- Understand P1 port
- Limited budget
 - Hardware cost only
 - No subscription cost

Credits

Code from: <https://github.com/jantenhove/P1-Meter-ESP8266>

Instructions from:

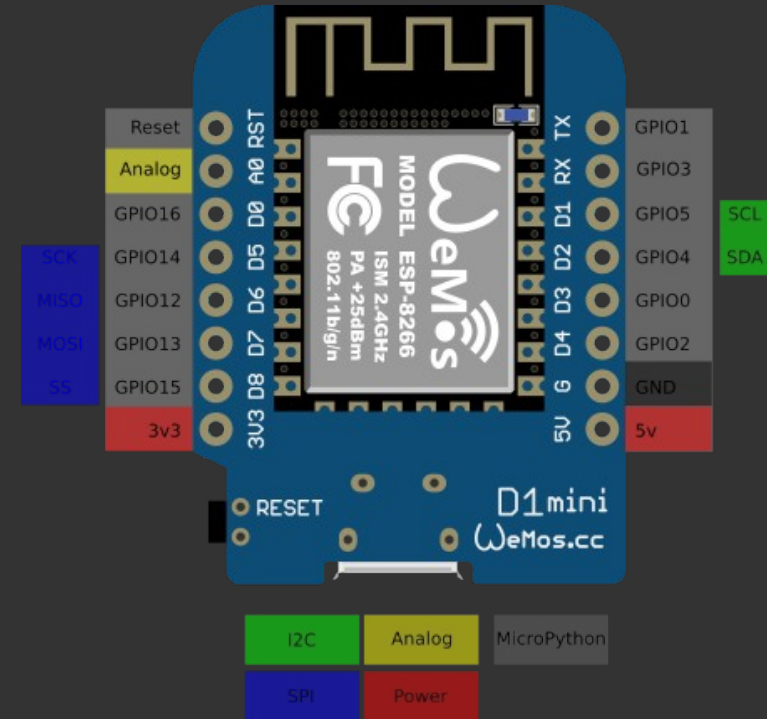
<http://domoticx.com/p1-poort-slimme-meter-data-naar-domoticz-esp8266/>

<https://www.fluvius.be/sites/fluvius/files/2020-01/dmk-demo-v2.1-rtc.pdf>

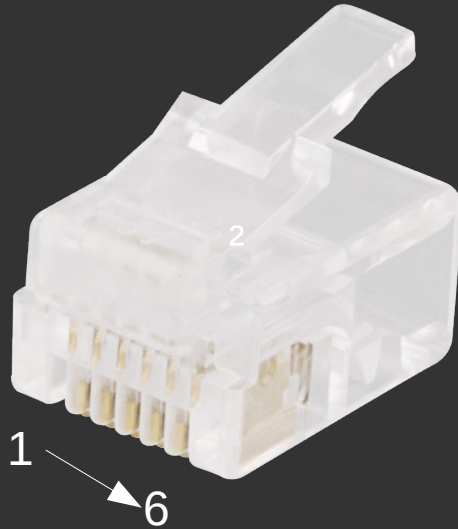
Hardware

LOLIN Wemos D1 Mini

- 5V
- Wireless
- ESP8266 architecture
- Cheap



Connecting to the P1 port over RJ12



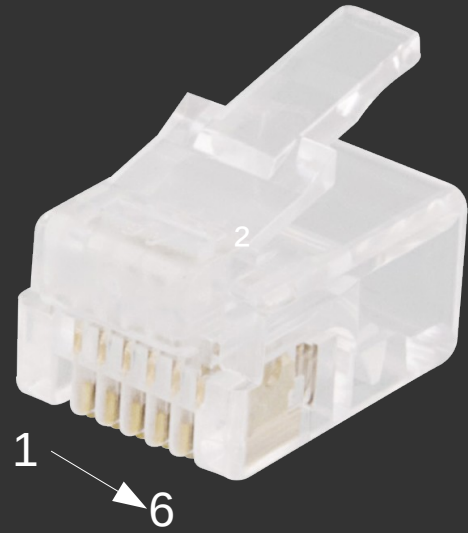
1. 5V***
2. 5V**
3. Ground**
4. Not Connected
5. RxD*
6. Ground***

* I used GPIO 2 on the D1 Mini

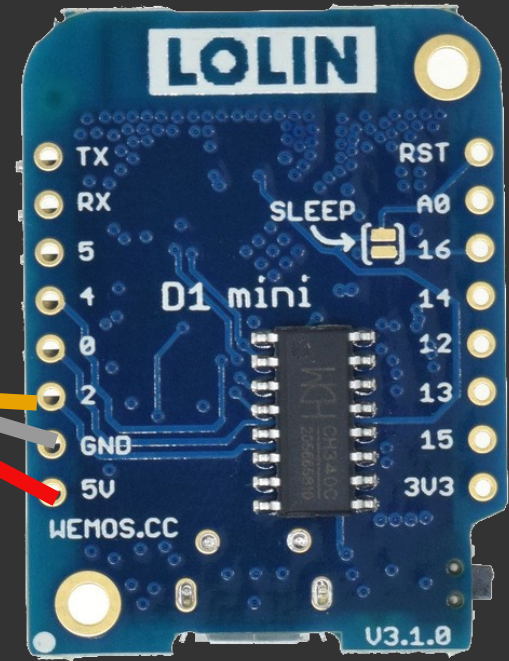
** When closing this circuit with 5V, this signals the smart meter to start sending data over the RxD pin

*** The Fluviu smart meter provides power over these pins, so you don't have to power the D1 Mini over a separate USB/power cable

Connecting to the P1 port over RJ12



1. 5V***
2. 5V**
3. Ground**
4. Not Connected
5. RxD*
6. Ground***



Example Serial console output

```
/FLU5\632470339_T  
0-0:96.1.4(50213)  
0-0:96.1.1(3153414731313030303838303136)  
0-0:1.0.0(200912060615S)  
1-0:1.8.1(001210.105*kWh)  
1-0:1.8.2(002703.013*kWh)  
1-0:2.8.1(001750.611*kWh)  
1-0:2.8.2(000507.828*kWh)  
0-0:96.14.0(0002)  
1-0:1.7.0(01.850*kW)  
1-0:2.7.0(00.000*kW)  
1-0:32.7.0(232.3*V)  
1-0:31.7.0(008*A)  
0-0:96.3.10(1)  
0-0:17.0.0(999.9*kW)  
1-0:31.4.0(999*A)  
0-0:96.13.0()  
0-1:24.1.0(003)  
0-1:96.1.1(37464C4F32313139313134373932)  
0-1:24.4.0(1)  
0-1:24.2.3(200912060501S)(00866.794*m3)  
!8CA4
```

VALID CRC FOUND!

```
[HTTP] GET... URL: http://192.168.1.4:8080/json.htm?type=command&param=udevice&idx=183&nvalue=0&svalue=1210105;2703013;1750611;507828;1850;0  
[HTTP] GET... code: 200
```

Example Serial console output

```
/FLU5\632470339_T  
0-0:96.1.4(50213)  
0-0:96.1.1(3153414731313030303838303136)  
0-0:1.0.0(200912060615S)  
1-0:1.8.1(001210.105*kWh)  
1-0:1.8.2(002703.013*kWh)  
1-0:2.8.1(001750.611*kWh)  
1-0:2.8.2(000507.828*kWh)  
0-0:96.14.0(0002)  
1-0:1.7.0(01.850*kW)  
1-0:2.7.0(00.000*kW)  
1-0:32.7.0(232.3*V)  
1-0:31.7.0(008*A)  
0-0:96.3.10(1)  
0-0:17.0.0(999.9*kW)  
1-0:31.4.0(999*A)  
0-0:96.13.0()  
0-1:24.1.0(003)  
0-1:96.1.1(37464C4F32313139313134373932)  
0-1:24.4.0(1)  
0-1:24.2.3(200912060501S)(00866.794*m3)  
!8CA4
```

Example telegram

Always starts with a /

Always ends with line starting with !

Cyclic redundancy check done on the message

Not all information sent to Domoticz

VALID CRC FOUND!

[HTTP] GET... URL: http://192.168.1.4:8080/json.htm?type=command¶m=udevice&idx=183&nvalue=0&svalue=1210105;2703013;1750611;507828;1850;0

[HTTP] GET... code: 200

Message labels and values

Opbouw van het telegram (P1): Detail

Versie informatie

Verwijzing naar de standaard

Let op: in NL een andere identificatiecode

Serienummer (E)

ASCII gecodeerd

Interne tijd (E)

Gecodeerd volgens YY/MM/DD/HH/MM/SS

S = zomertijd, W = wintertijd

Ogenblikkelijke spanning / Fase (E)

32.7.0 = fase 1

52.7.0 = fase 2

72.7.0 = fase 3

Let op: bij monofasige meter enkel 32.7.0

Ogenblikkelijke stroom / Fase (E)

31.7.0 = fase 1

51.7.0 = fase 2

71.7.0 = fase 3

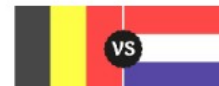
Let op: bij monofasige meter enkel 31.7.0

Vrij tekstveld

Mogelijk om tekst te versturen vanuit fluvius (toekomstig gebruik)

/FLU5\253769484_A

```
0-0:96.1.4(50213)|
0-0:96.1.1(3153414733313030303132373532)
0-0:1.0.0(191001090345S)
1-0:1.8.1(000003.806*kWh)
1-0:1.8.2(000005.918*kWh)
1-0:2.8.1(000000.000*kWh)
1-0:2.8.2(000000.207*kWh)
0-0:96.14.0(0001)
1-0:1.7.0(00.000*kW)
1-0:2.7.0(00.000*kW)
1-0:32.7.0(233.0*V)
1-0:52.7.0(230.7*V)
1-0:72.7.0(233.2*V)
1-0:31.7.0(000*A)
1-0:51.7.0(000*A)
1-0:71.7.0(000*A)
0-0:96.3.10(1)
0-0:17.0.0(999.9*kW)
1-0:31.4.0(999*A)
0-0:96.13.0()
0-1:24.1.0(003)
0-1:96.1.1(37464C4F32313139303333373432)
0-1:24.4.0(1)
0-1:24.2.3(191001090338S)(00000.000*m3)
!4801
```



Tellerstanden (E)

1.8.1 = Afname in dagtarief

1.8.2 = Afname in nachttarief

2.8.1 = Injectie in dagtarief

2.8.2 = Injectie in nachttarief

Tarief indicator (E)

Welk tarief is momenteel van toepassing

1 = dag, 2 = nacht

Let op: in NL is 1 = nacht, 2 = dag!

Ogenblikkelijke vermogens (E)

Wat zijn de ogenblikkelijke vermogens gemeten door de meter

1.7.0 = Ogenblikkelijke afname

2.7.0 = Ogenblikkelijke Injectie

Afsluitstatus (E)

Is de klant aangesloten op het E-net?

1 = Ja; 0 = nee; 2 = klaar voor

herindienststelling (druk op de knop)

Begrenzer instellingen (E)

Is er een begrenzer actief?

999(,9) = niet actief

Andere waarden = actief met deze waarde

fluvius.

DMK - TTT RTC

23/01/2020 •

The arduino code

- Based on Jan Ten Hove's Github project
- Altered for belgian implementation of DSMR P1 V5.0.2
 - HI/LO production/consumption identification in the telegram is inverted BE vs NL
 - Gas identification is different BE vs NL
 - WH to kWH conversion needed
 - MAXLINELENGTH extended

Get up and running 1 of 2

- Download & install arduino IDE
- Add ESP8266 boards support to Arduino IDE
 - File > Preferences > Additional Boards Manager URL:
http://arduino.esp8266.com/stable/package_esp8266com_index.json
- Install the ESP8266 SoftSerial library
 - Sketch > Include Library > Manage Libraries
I installed AltSoftSerial library from Paul Stoffregen
- Add CRC16.h to a new folder you call CRC16 in your Arduino/Libraries folder.
E.g. for Linux in */home/yourusername/Arduino/libraries/CRC16/CRC16.h*

Get up and running 2 of 2

- Configure the sketch to connect to your network