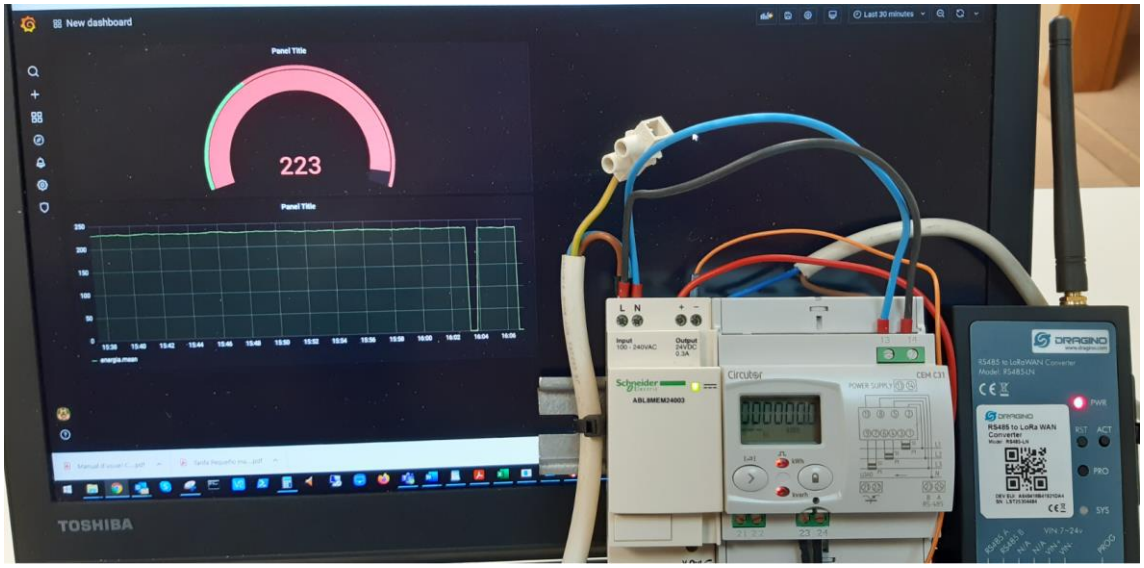
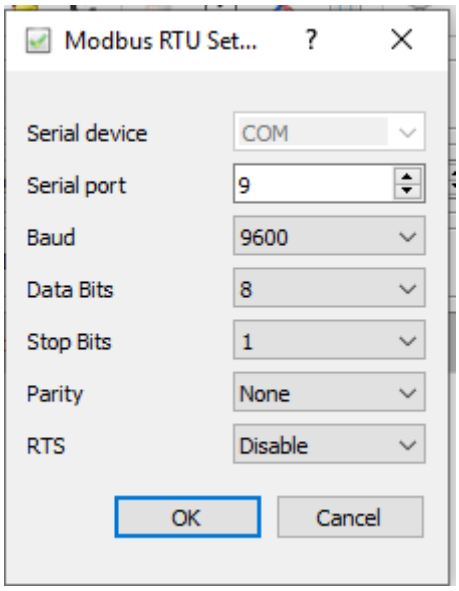
ELECTRICAL CABINET ENERGY READINGS WITH CIRCUTOR CEM C31 485-T1-MID



VOLTAGE PHASE 1

Configure QModMaster as follows



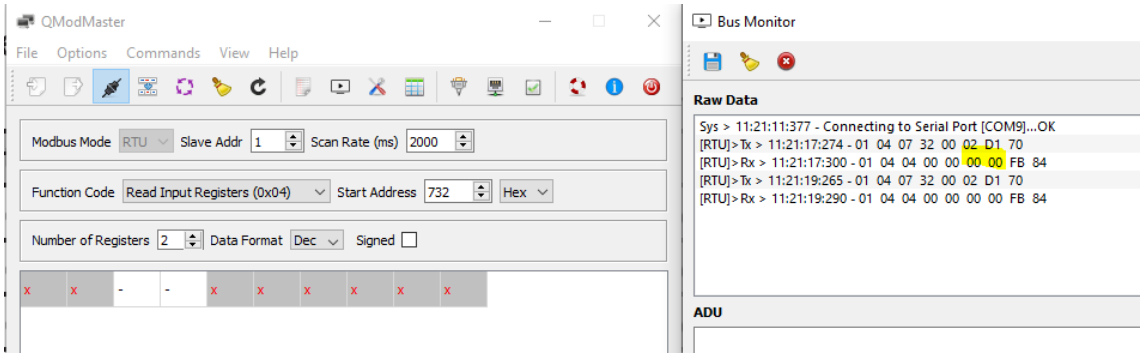
Slave unit is 1 as default

7.2.3.3.- Instantaneous values

The **Read** function is implemented for these variables.

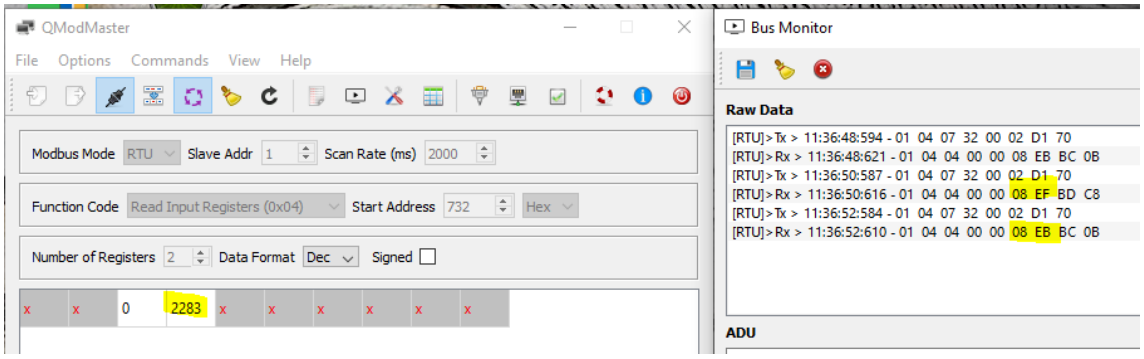
Table 19: Modbus variables: Instantaneous values.

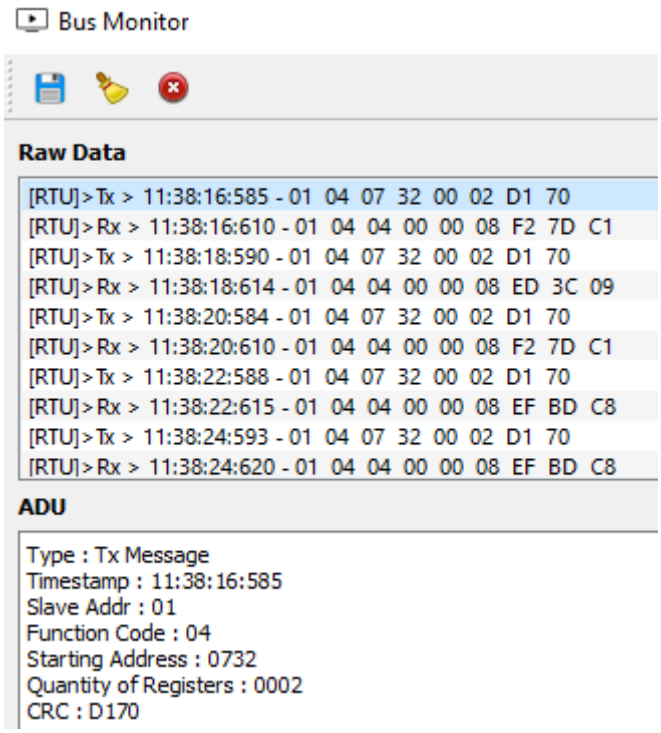
Description	Address	Size	Units
Phase 1 voltage	0x0732	32 bits	V (1 primary decimal place)

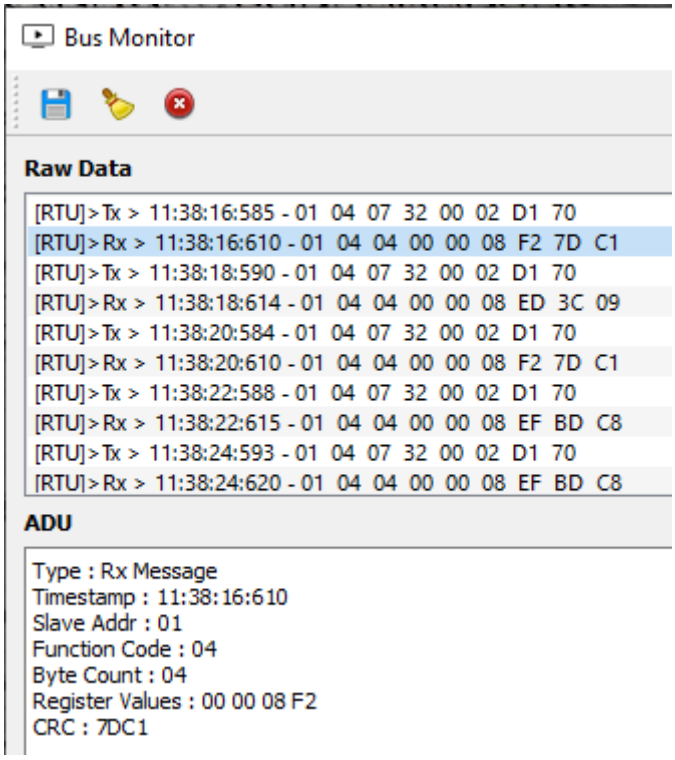


If we apply 230V on phase 1

Then we get 08EE or 2283 which is 228,3V so the value we get from Modus has to be divided by 10







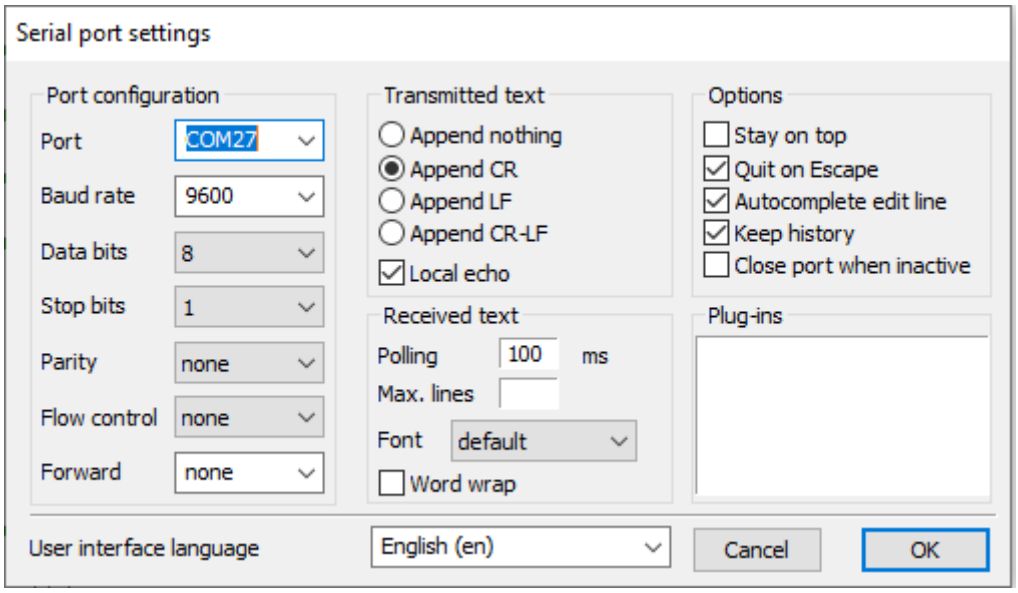
And the AT values are

AT+COMMAND1=01 04 07 32 00 02,1

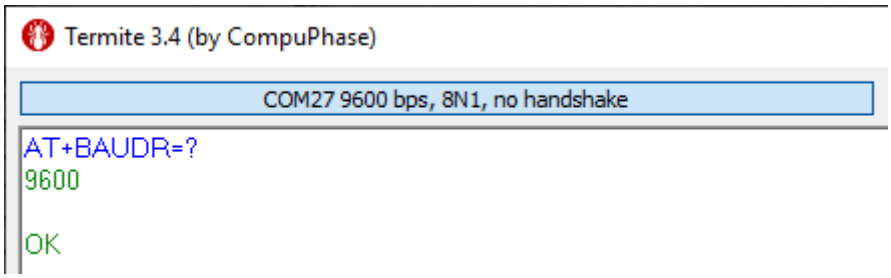
AT+DATACUT1=9,1,6~7

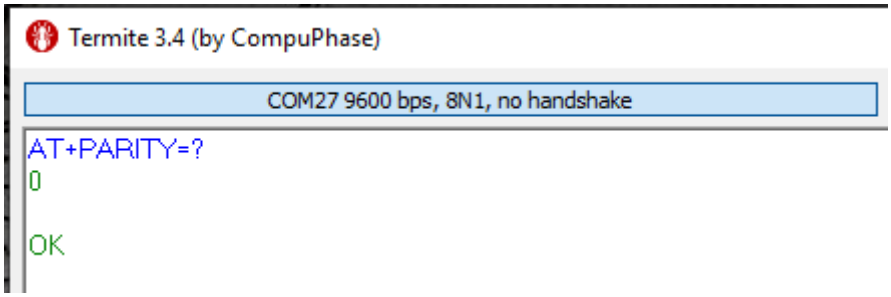
Let’s connect Termite to configure Dragino

Use this settings



Ensure we have the right comm parameters





So let's program the Dragino for reading voltage Phase 1

AT+COMMAND1=01 04 07 32 00 02,1

AT+DATACUT1=9,1,6+7

But you have to do this when there is a Gateway on the surrounding, and the node is connected to the loraWAN network

```
AT+COMMAND1=01 04 07 32 00 02,1

OK
AT+DATACUT1=9,1,6~7

OK
```

We reset the device by pressing RST button

```
Join Accept:
DevAddr:26 01 55 84
Rx1DrOffset:0
Rx2Datarate:3
ReceiveDelay1:1000 ms
ReceiveDelay2:2000 ms

CMD1    = 01 04 07 32 00 02 d1 70
RETURN1  = 00 00 00 00 00 00 00 00
Payload  = 01 00
```

let’s check the transmission time

```
AT+TDC=?
600000

OK
```

This is a transmission every 60 seconds

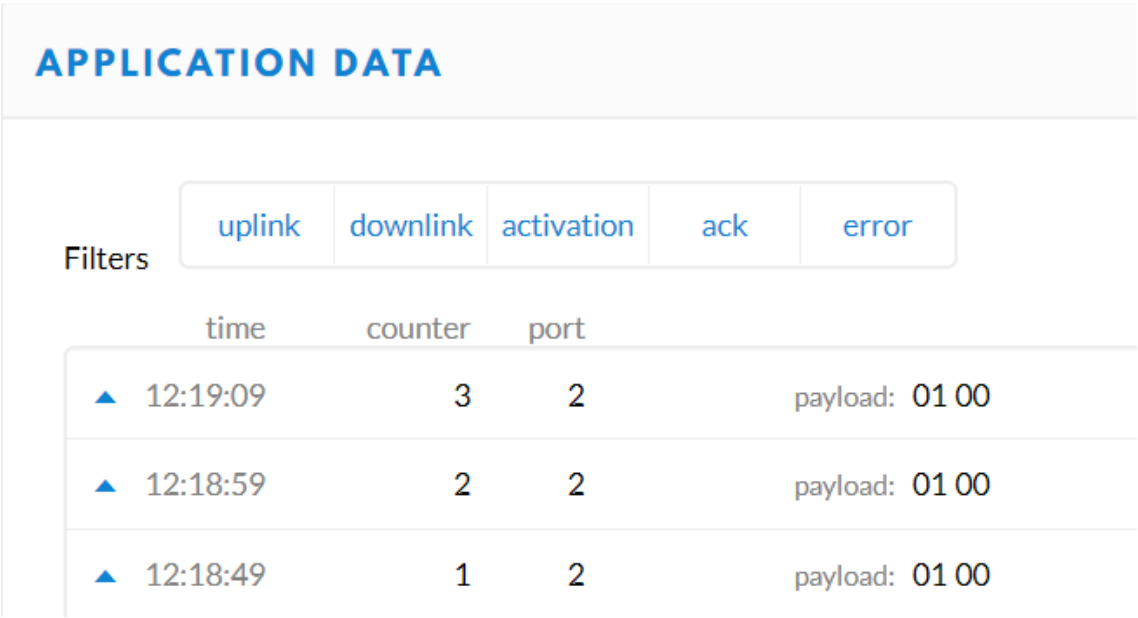
Let’s change to every 10 seconds

```
AT+TDC=10000

OK
```

And let’s make a reset with button RST

We have it every 10 seconds



The response is 0 since we do not have any slave listening.

Let's connect slave 1

```
CMD1    = 01 04 07 32 00 02 d1 70
RETURN1  = 01 04 04 00 00 08 eb bc 0b
Payload  = 01 08
```

Voila, but we see that the payload is not correct

So the right command is

```
AT+DATACUT1=9,1,6+7

OK
```

AT+DATACUT1=9,1,6+7

voilà

```
CMD1    = 01 04 07 32 00 02 d1 70
RETURN1  = 01 04 04 00 00 08 e7 bc 0e
Payload  = 01 08 e7
```

Now we want to decode this payload

Payload Format

The payload format sent by your devices

Custom

decoder | converter | validator | encoder

```
function Decoder(bytes, port) {
  // Decode an uplink message from a buffer
  // (array) of bytes to an object of fields.
  var decoded = {};
  if (port === 2) {
    decoded.voltage_Phase1 = (bytes[1]*256+bytes[2])/10;

  }

  return decoded;
}
```

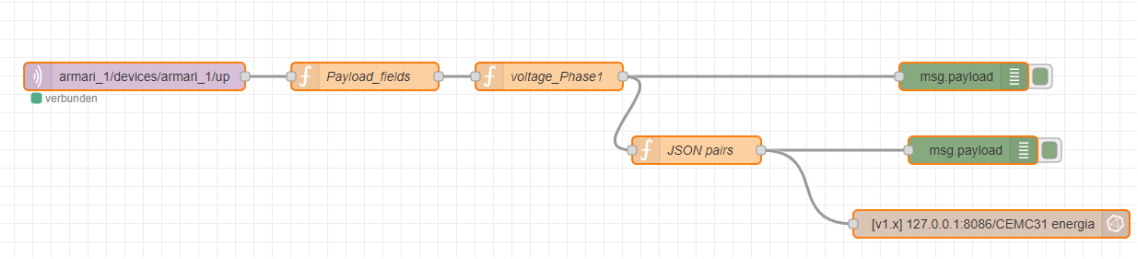
Voilà

APPLICATION DATA

Filters: uplink | downlink | activation | ack | error

time	counter	port	
12:37:19	113	2	dev id: armari_1 payload: 01 08 F7 voltage_Phase1: 229.5

And the Node RED Flow to inject the data on a database



You can get the code here

https://github.com/xavierflorensa/CIRCUTOR-CEM-C31-RS485-to-LoRaWAN