

Archived Forum

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Water Meter Guide Updated v2.0

Submitted by smitt1979 on Thu, 21/04/2016 - 21:23

Update

Please note that there was a problem in the way the water meter usage was being log to emoncms. I have tried as many ways as I could think of to used to current input and logging that is built in to emoncms to calculate the usage but all had a common problem that cause to feeds to log incorrect data if the system was rebooted

I am reluctantly going to have to update the guide to incorporate node-red to do some of the function

Why reluctantly you ask this is not a problem with using node-red (I love node-red) I want to make any guides that I write to be accessible to all used from the novice to the experts and I don't want to discourage the novice with complicated setup but in this case I'm going to have to use a more complex setup

I have updated the guide with a much detail as I can but if you are having problems please let me know

Please also note you will need to be running one of the later software images that includes node-red

Water Meter Guide

This guide is to show the setup of a water meter with a pulse output. I will be using the pulse input on an EmonTH in this guide but there is no reason the setup will not work with other products in the OEM family that have a pulse input e.g. (Emonpi, etc).

My reason for using the EmonTH is the location of the meter and the pulse input on my Emonpi already being used for monitoring a gas meter (Guide to follow for this too).

Things you will need, where I got mine and costs.

Water meter with pulse output

I'm using a Bell Single-Jet Cold Water Meter that cost £25.00 from ebay which pulses once for every 10 litres of water used.

The meter info;

<http://www.bellflowsystems.co.uk/single-jet-cold-water-meter-alfa-sj-sdc...>

The meter on ebay;

<http://www.ebay.co.uk/itm/WRAS-approved-15mm-1-2-Cold-Water-Meter-Option...>

EmonTH (As I needed a battery power device for the location and an additional pulse input) I got the DTH22 - Temperature & Humidity with case for £36.36 (inc VAT) you can get the EmonTH cheaper with no case and humidity sensor for £28.56 (inc VAT)

EmonTH on OEM site;

<https://shop.openenergymonitor.com/emonth-no-rt-temperature-humidity-node/>

10k Resistor £0.29 from maplins;

<http://www.maplin.co.uk/p/metal-film-06w-10k-ohm-resistor-m10k>

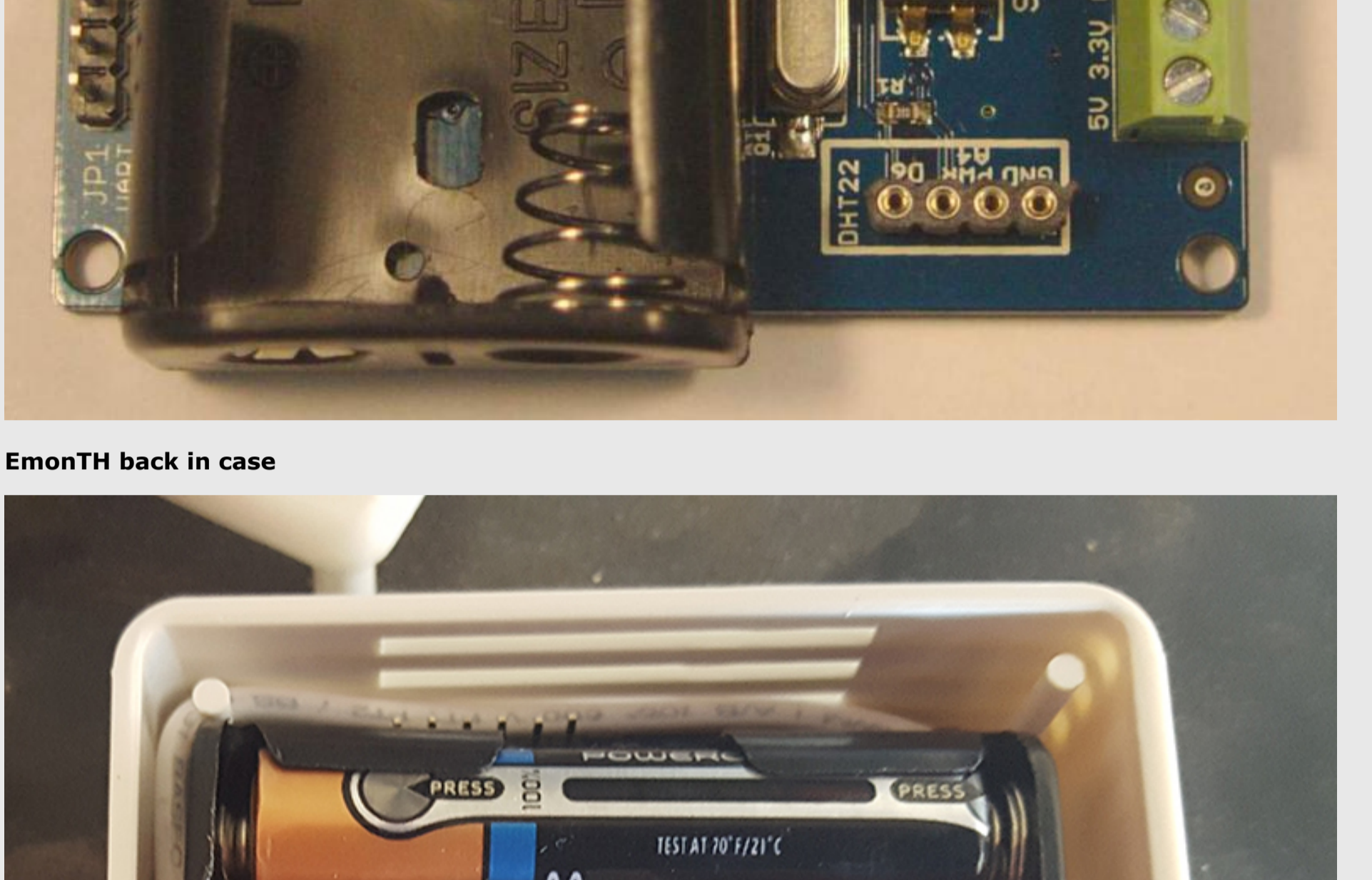
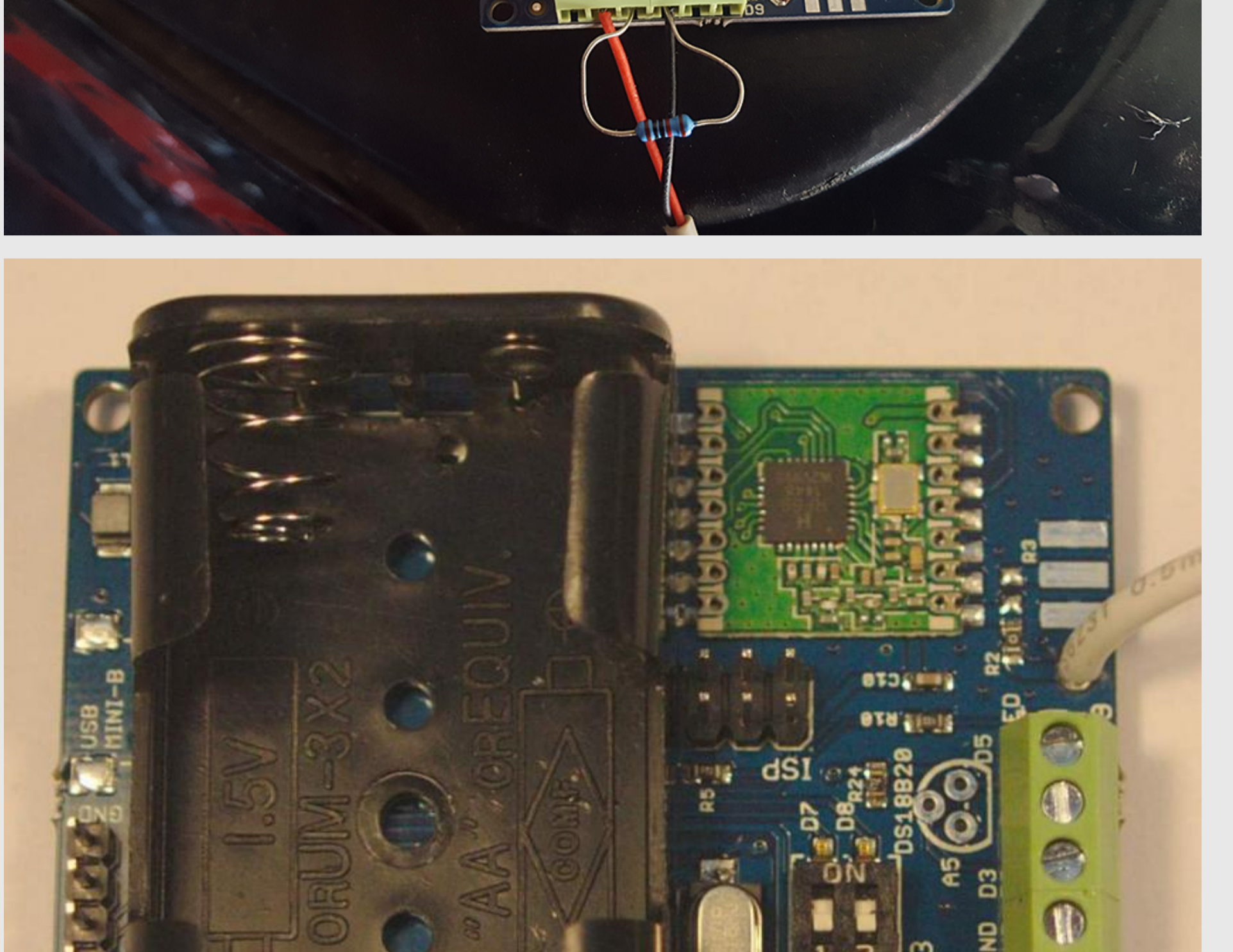
The install:

Water Meter

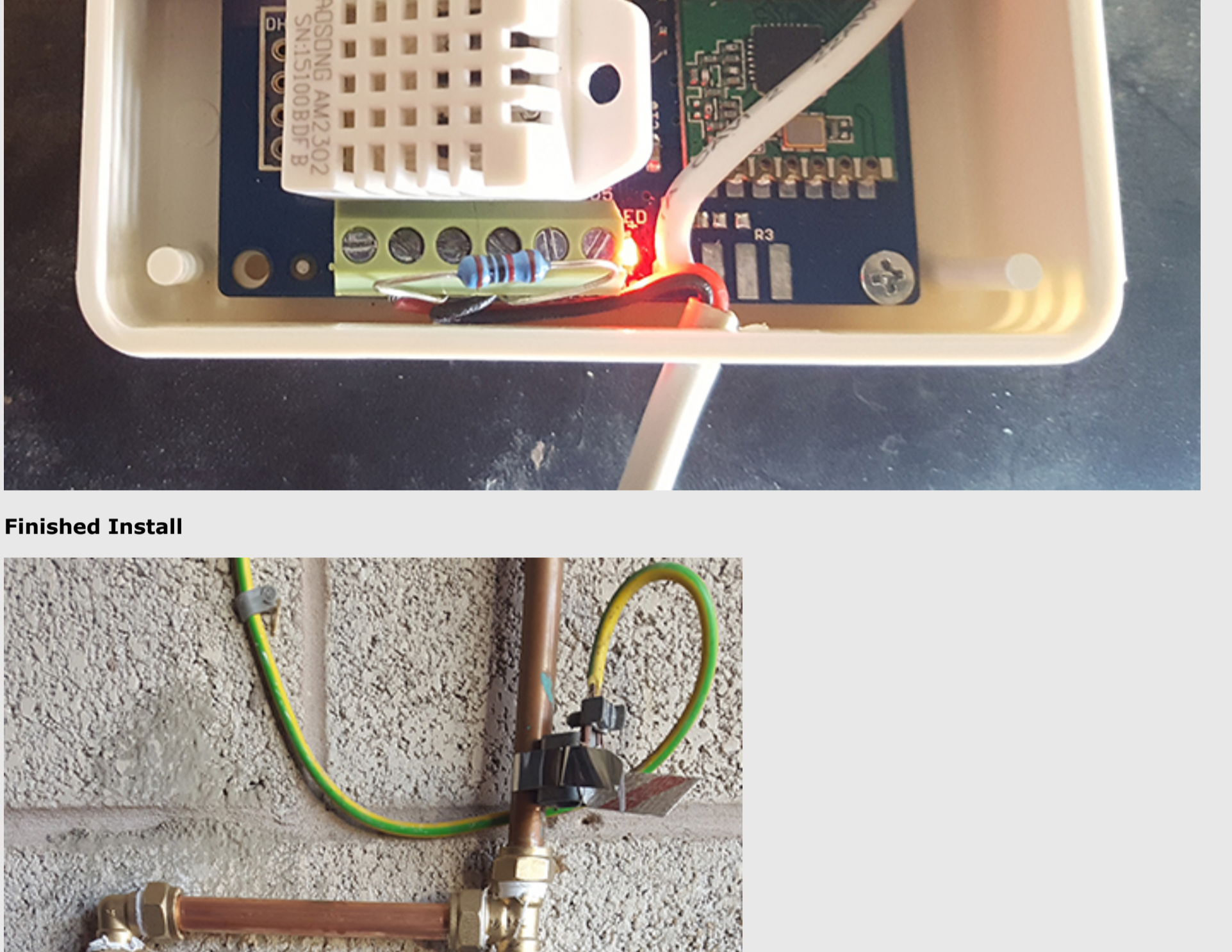


EmonTH wiring a resistor configuration

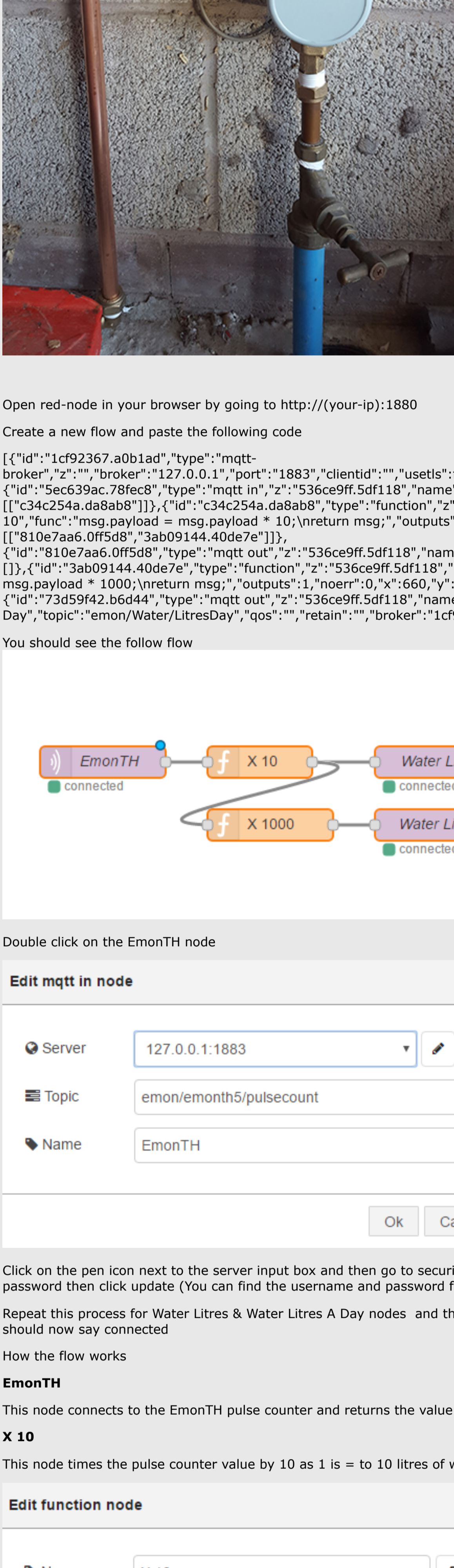
The water meter only has two cables (Red & Black) the red goes to the 3.3v on the screwed terminal block, the black goes to the D3 on the screwed terminal block. The resistor is installed between the GND & D3 on the screwed terminal block, the resistor keeps the pulse input at 0 this stops any unwanted additions to your usage if you reboot the EmonTH.



EmonTH back in case



Finished Install

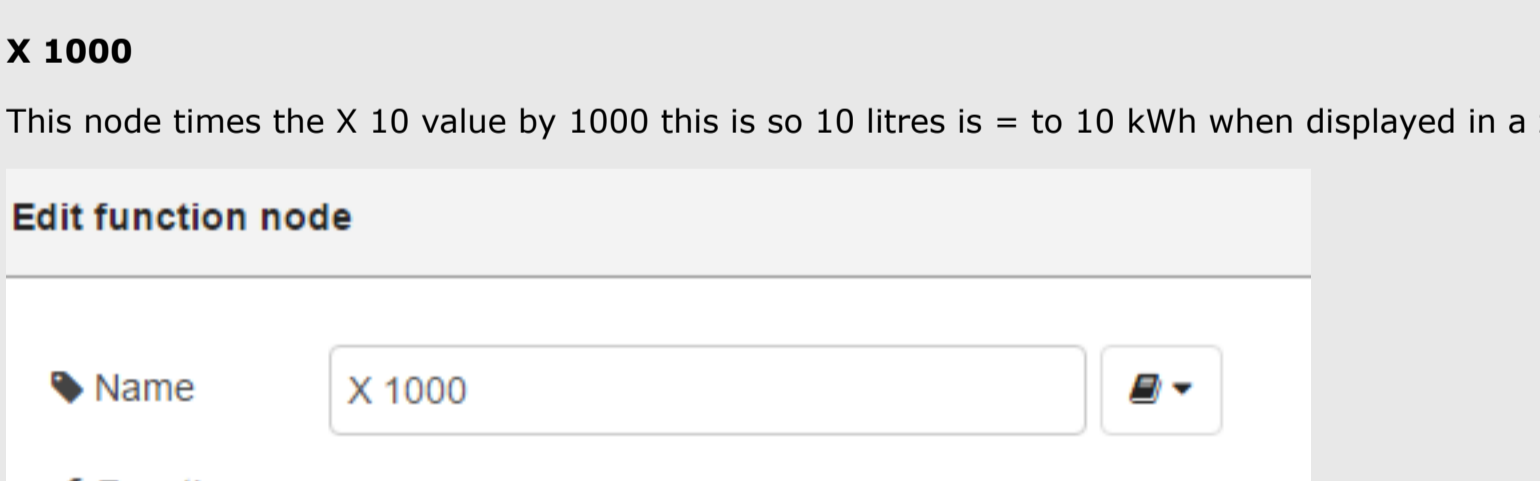


Open red-node in your browser by going to [http://\(your-ip\):1880](http://(your-ip):1880)

Create a new flow and write the following code

```
[{"id":"1cf2367.a0b1ad","type":"mqtt-broker","z":"","broker":"127.0.0.1","port":"1883","clientid":"","usetls":false,"verifyservercert":true,"compatmode":true,"broker":{"id":"5ec639ac.78fec8","type":"mqtt in","z":"","536ce9ff.5df118","name":"Emonpi","topic":"emon/emonth5/pulsecount"},"br":[{"id":"c34c254a.da8ab8"}],{"id":"c34c254a.da8ab8","type":"function","z":"","536ce9ff.5df118","name":"X 10","func":"msg.payload = msg.payload * 10;\nreturn msg;","outputs":1,"noerr":0,"x":650,"y":320,"wires":[{"id":"810e7a6.0f5d8","3ab09144.40de7e"}]},{"id":"810e7a6.0f5d8","3ab09144.40de7e"},"type":"function","z":"","536ce9ff.5df118","name":"Water Litres","topic":"emon/Water/Litres"},"qos":[{"id":"3ab09144.40de7e","type":"function","z":"","536ce9ff.5df118","name":"X 1000","func":"msg.payload = msg.payload * 1000;\nreturn msg;","outputs":1,"noerr":0,"x":660,"y":380,"wires":[{"id":"73d59f42.b6d44"}]},{"id":"73d59f42.b6d44","type":"mqtt out","z":"","536ce9ff.5df118","name":"Water Litres A Day","topic":"emon/Water/LitresDay","qos":"","retain":"","broker":"1cf2367.a0b1ad","x":850,"y":380,"wires":[]}]
```

You should see the follow flow



Double click on the EmonTH node

Edit mqtt in node

Server: 127.0.0.1:1883

Topic: emon/emonth5/pulsecount

Name: EmonTH

Ok Cancel

Click on the pen icon next to the server input box and then go to security tab and enter your mqtt username and password then click update (You can find the username and password for MQTT in the emonhub config file)

Repeat this process for Water Litres & Water Litres A Day nodes then click Deploy If all goes well all three node should now say connected

How the flow works

EmonTH

This node connects to the EmonTH pulse counter and returns the value

X 10

This node times the pulse counter value by 10 as 1 = to 10 litres of water

Edit function node

Name: X 10

Function:

```
1 msg.payload = msg.payload * 10;\n2 return msg;
```

Outputs: 1

See the Info tab for help writing functions.

Ok Cancel

X 1000

This node times the X 10 value by 1000 this is so 10 litres is = to 10 kWh when displayed in a zoom graph

Edit function node

Name: X 1000

Function:

```
1 msg.payload = msg.payload * 1000;\n2 return msg;
```

Outputs: 1

See the Info tab for help writing functions.

Ok Cancel

Water Litres

This node sends the value from X 10 back to emoncms

Water Litres A Day

This node sends the value from X 1000 back to emoncms

And thats the node-red bit done :-)

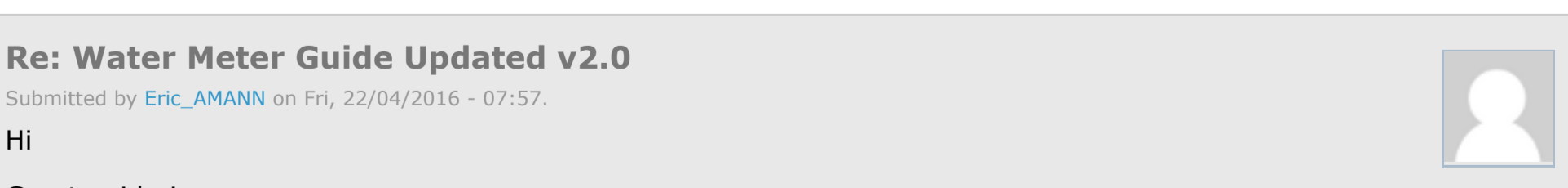
You should now have a Water Node in inputs on emoncms

Node	Type	Name	Processor	Inputs	Outputs	View
1880	MQTT	Water Litres	mqtt in	1	1	View
1881	Function	X 10	function	1	1	View
1882	Function	X 1000	function	1	1	View
1883	MQTT	Water Litres A Day	mqtt out	1	1	View

Emoncms Feeds

ID	Tag	Name	Process ID	Public	Display	Engine	Units	Update	View
244		Water Litres				REALTIME PIPING	lit	1000	View
245		Water Litres				REALTIME PIPING	lit	10000	View
246		Water Litres A Day				DAILY PIPING	lit	100	View

Dashboard Example



Water Costs

Last 30 days. Daily

This is my first guide on OEM so any feedback is welcome I'm more than happy to edit if anyone has a better way of setting this up

Thanks Steve

< Calibration constants Send current power from efergy unit to emoncms? >

Re: Water Meter Guide Updated v2.0

Submitted by Mdn@mail on Thu, 21/04/2016 - 21:37.

Hi Steve

Thank you for taking the time in producing this well documented project.

Regards

Dave

Re: Water Meter Guide Updated v2.0

Submitted by firefox7518 on Fri, 22/04/2016 - 09:28.

Perfect Steve!

I just started to use EmonCMS for ou towns Water treatment. Just waiting for internet in the reservoir so that I can send the data out to my main server.

We have a Siemens Simatic with ModbusTCP which I read out and send the data to a local EmonCMS in the operations control room. Next thing I also wanted to add is a pulse counter which reads the water outflow from the both reservoirs where maybe your guide will become handy for that :-)

Re: Water Meter Guide Updated v2.0

Submitted by Eric_AMANN on Fri, 22/04/2016 - 07:57.

Hi

Great guide !

You should add what sketch must be used.

Eric

Re: Water Meter Guide Updated v2.0

Submitted by smitt1979 on Fri, 22/04/2016 - 09:43.

Hi Eric

All stock sketch no mod of any kind I like to try and use the default system setup so it accessible to a user's

Thanks Steve

Re: Water Meter Guide Updated v2.0

Submitted by Eric_AMANN on Fri, 22/04/2016 - 11:01.

Ok but it doesn't tell us which sketch it is.

For old and coming users, it would be difficult to use your guide because the "main" sketch of the EmonTH changed many time in the past and it will change for sure in the future.

Again, great guide except that point.

Eric

Re: Water Meter Guide Updated v2.0

Submitted by glyn.hudson on Fri, 22/04/2016 - 13:29.

Nice guide!

Re: Water Meter Guide Updated v2.0

Submitted by smitt1979 on Sat, 23/04/2016 - 07:34.

Hi all

Please note a change in the Emoncms inputs configuration as there was a error in the usage if you rebooted to system

Guide has been updated

Steve

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