

## **Part 1**

It was a lovely sunny day today so I have had a look at an old ESC (electronic speed controller) This is something from the depths of another dusty box from that there Mr Weeks!!

After much clearing of grunge and dust a quick look had been had some time ago which nearly melted the batteries. This time tho. the instructions were actually read!

The unit is marked as / rated as 12v & 10amp so should be good for a small LGB loco.

I want to run the track powered layout but using remote control, without buying yet another control system. After all we all have perfectly usable transformers etc. they just need to be remotely controlled. I have many transmitter units and most ESC units will work with them. Yes there are a significant number of alternative control systems around and I have recently been researching these for another project. They look very good and would easily provide what I am looking for but at a price.

Initially 3 LGB Locos were tested :

- A very old U class no sound and heavy amp pulling motor
- Modern U class with sound and smoke unit
- My Modern IIK twin loco no sound with smoke unit & 2 motors of course!

## **Test no1**

As can be seen Rx battery pack in place.

Power supplied from my 12v 1.2 mAhr small gel battery.

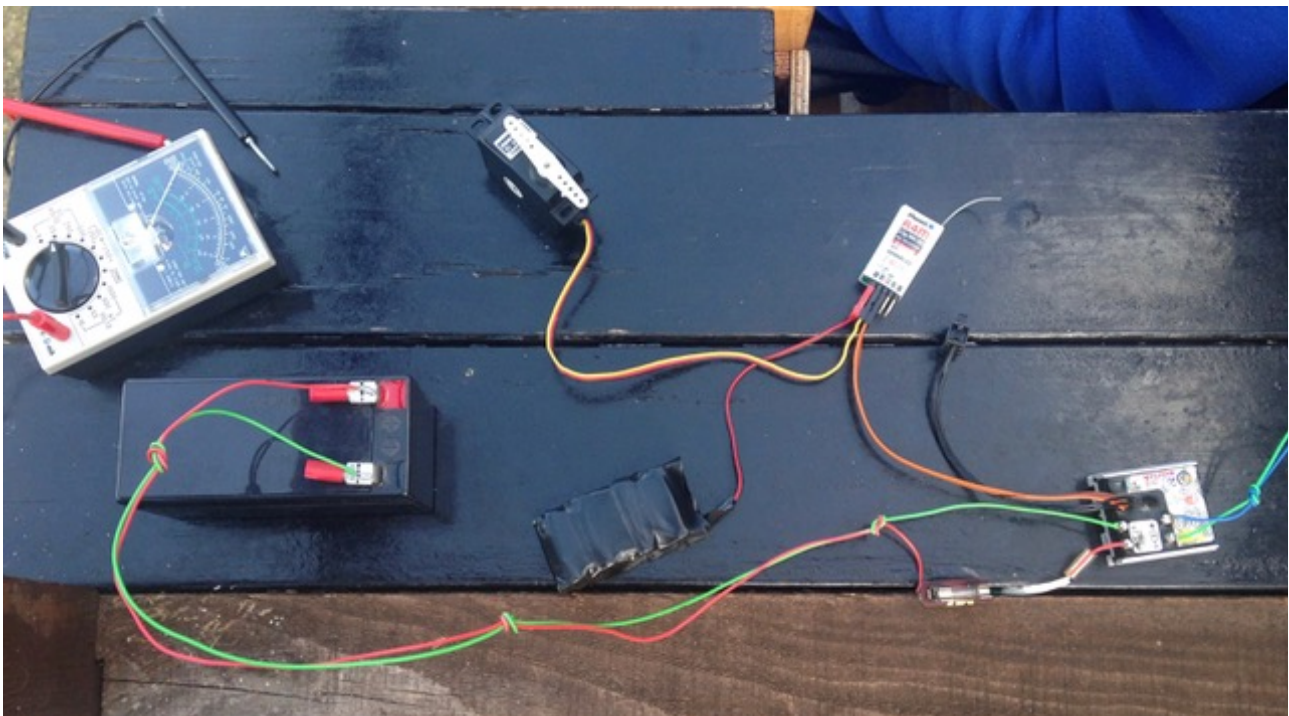
A 3amp quick blow glass fuse is installed in the power input side.

Servo is also in place to visually check operation of the Rx on channel 3

ESC in slot 2 as per instructions

Worked OK not much power in the track despite reading 10-12v when tested.

All locos all ran very slow and failed to pass over any points or tackle even slight inclines

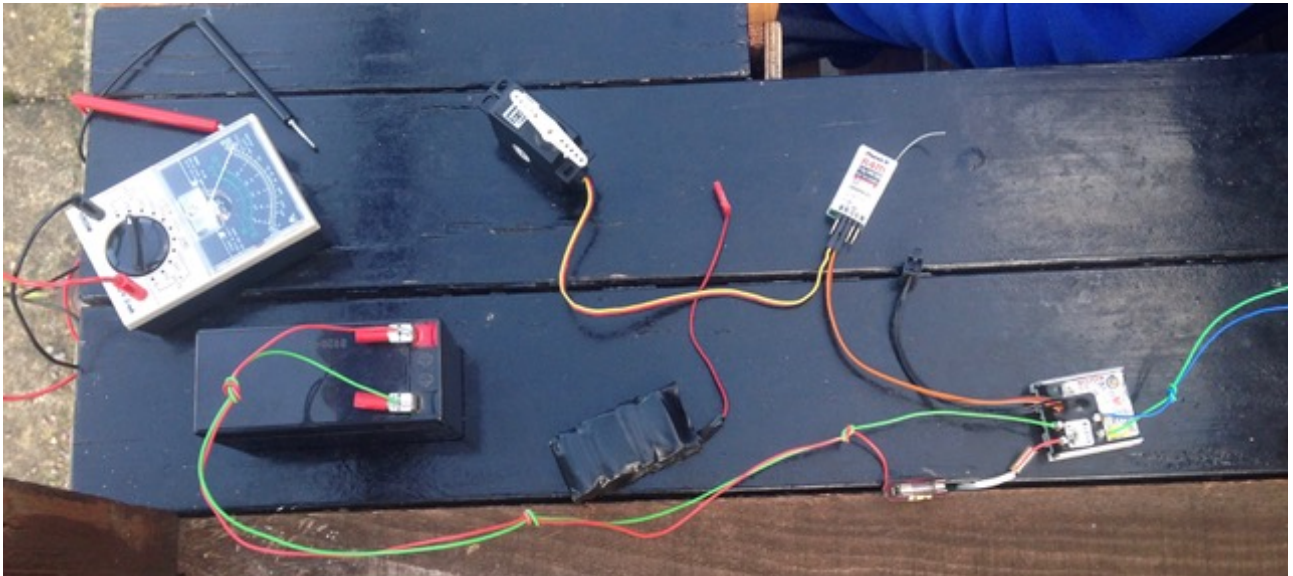


## **Test no.2**

As above except no RC battery pack.

So for some reason unknown to me the Rx is in fact powered from the battery and all runs!  
Same results as above.

A Larger 12v 3.4 ampHr battery also tried in case this was different but same results.



## **Test no.3**

As above except power now supplied from the basic LGB controller set to max output.  
+ve carefully checked before connections made.

Track voltage now read as generally 14.5v.-15.5v and yes the ESC did not melt just got little warm!

The elderly loco performed poorly, ran slowly and failed to climb the new incline.

The others were fine and worked happily all round the track work.

The 'control' via the Tx was fairly poor. Only 3-4mm of movement on the stick provided the full extent of any speed control. In fact using the trim lever provided the best amount of control and was very good for slowing to a stop.

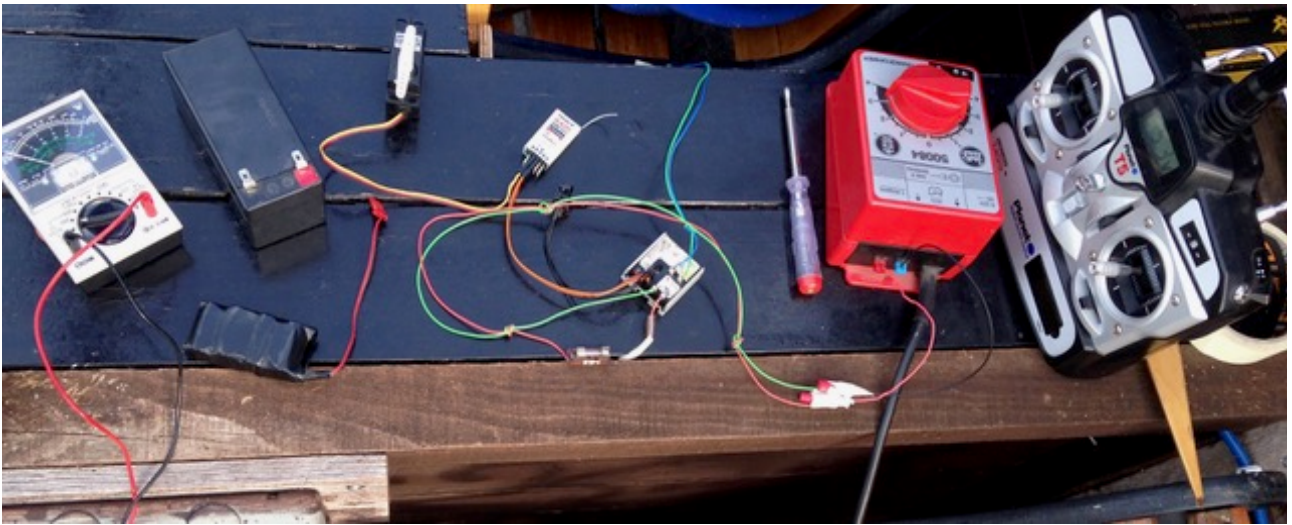
Reverse was blocky and rough with only 3 noticeable speed steps. Later inspection reveals that the loco plugs in my Saxony 'Twins' were not fully home so perhaps this explains the erratic behaviour.

Drop outs were experienced occasionally possibly due to the LGB controller cut out tripping; something not noted at first as it was sporadic.

Notable power loss when tackling the extended larger circuit. Just enough power available to tackle the new incline but only just; however plenty of power when on the level again in the far loops and tunnel.

Radio signal worked fine all round the garden with occasional drop outs in the extreme corner by the station.

However when in Line of sight to the Rx a much greater distance was no problem at all. i.e. control was good when at the end loops & tunnel.  
After an hour and a half the basic controller got hot enough to trip the cut-out every 5 minutes and the experiment was terminated.



So it seems that Radio Control of standard analogue works fine, but unfortunately probably not with all the existing equipment.

## **Part 2 - another day**

So after the rain some sun - so out once again to see what might be done.

### **Test no.4**

Adapters were made and my battery charger tested, it was advised to me that this should be useful power source.

The LED on the receiver flashed inconsistently and the ESC unit failed to light up at all and no controlled current was provided. So a complete failure, although it certainly has spent many good years charging my car!

I suspect the overcharging circuits cut in or whatever so this is discounted as a viable power source.

### **Test no. 5**

The existing battery van was used, also C/O that Mr Weeks!. His small tram brought out and the connectors swapped over so that this is run from the new setup.

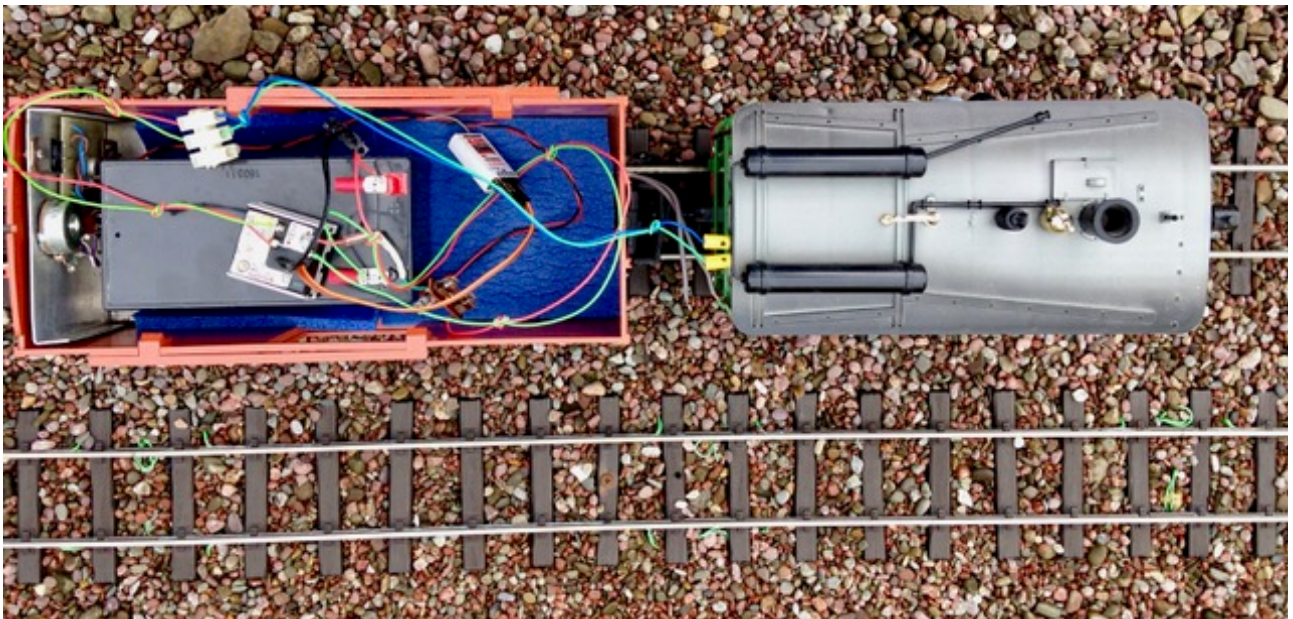
As can be thought direct control to the loco works well. The ESC unit performed well with much better control than before on this small loco.

So as far as the original intent was Laurie can have this in a van and run the several locos he has already modified to work from battery power. Additional receivers will be required which might be an issue on his older radio systems or we will have to get a new one of course!!!

Our conclusion here is that a substantial amount of resistance has been experienced working through the control panel.



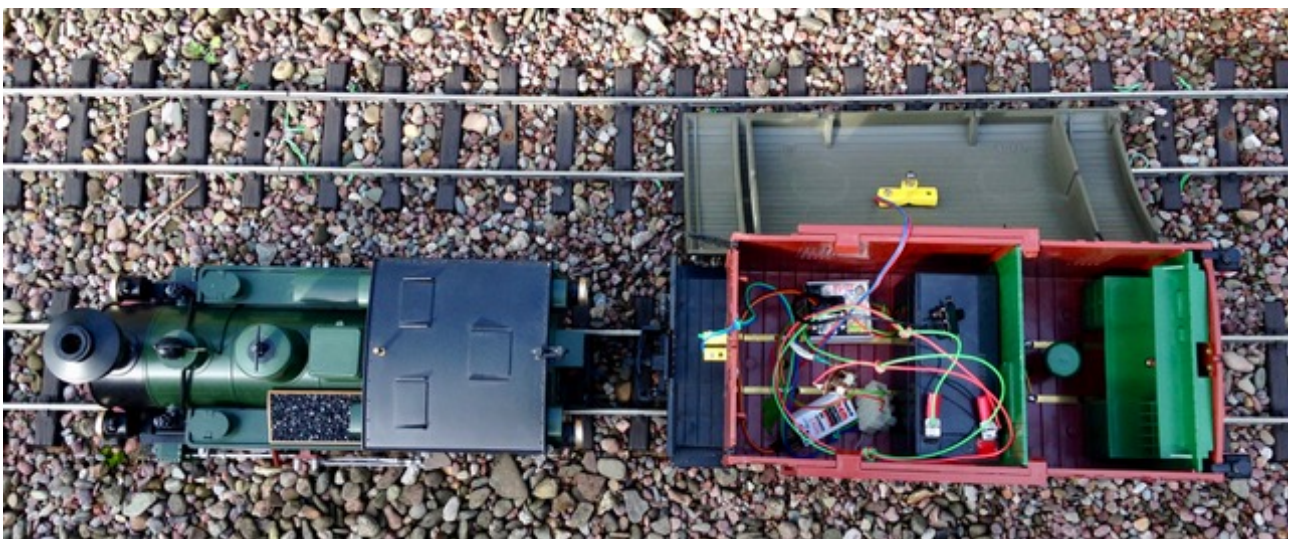
Of course the problem here as far as I am concerned is that the van must run behind the engine - and now I need one for the Saxony train, one for the HSB train, one for the DR train etc. or am I just being fussy - YUP.



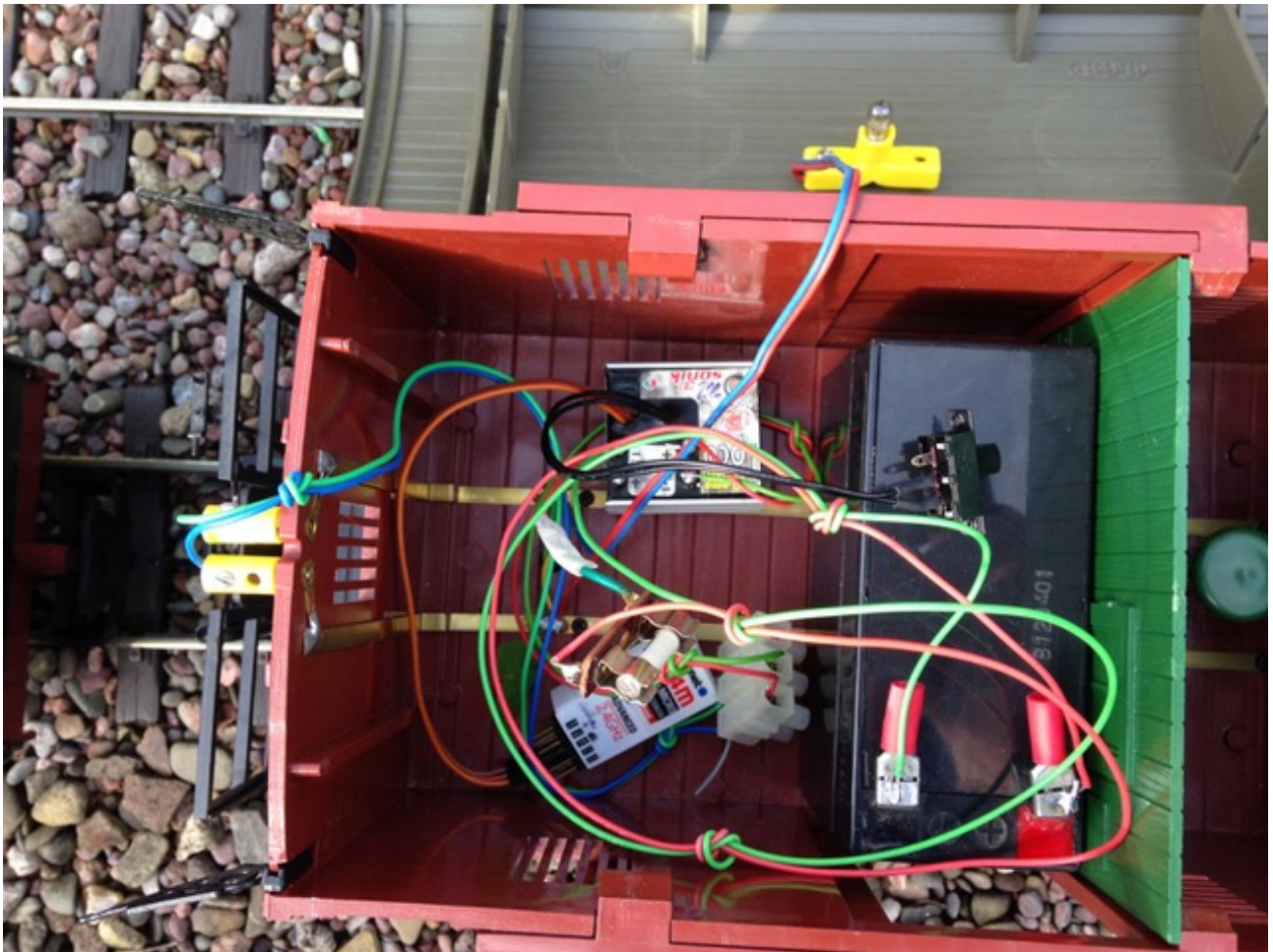
## **Test no. 6**

So for this trial I had an idea. Well once a year should not cause too much brain damage. So Dad's Post Van was fetched out. This time my small battery and all the electronic gummigess were put inside.

Why the Post van? Well now it has track pickups for all the lighting. So by connecting up to these I put the controlled power into the track from the van via the pickups! My new analogue Saxony Loco can be seen up front and ran fine if not a fast as with a mains powered controller.







### **Test no. 7**

So flushed with success it should be realised that the power is travelling 'only' a few inches to the loco. Well OK it electricary and energised the whole circuit but well that comes later. So can the loco be run with the van to the rear? Well see below.





So NOW we have the thought well we are not stuck with a tethered van. This means we can shunt the train as normal, run round loops etc.

So below we are running round leaving the control van in the other loop. In fact this extended to leaving the control van in the loop, picking up an alternative lighter brake van and running with this!



The downside is that there is not a great deal of amps to play with. After a little while say 20 mins. the battery began to run low. The Post van is very heavy to haul as it has two pickup axles with 4 heavy plunger pick ups. If pushed it will not roll along and is about the same number of 'units' as pulling one large bogie coach. (The W&L consider their large bogie coaches to be one and a half units)

Additionally let us not forget we are putting power into 3 old filament lights of the Post Van, 3 new presumably LED lights to the loco, smoke unit to the loco and trying to haul a heavy train!

So my little loco struggled with this making 4 vehicles it's maximum. It did however tackle the inner circuit fine and with 3 vehicles would probably make the new extension & incline.

Additionally two DCC locos were tested a Steinz and the HSB 2-6-2.

The Steinz struggled along with the sound card making weak squawking noises.

The 2-6-2 moved 4 inches then just laughed at us.

So putting 12v basic battery power into DCC controlled locos is er well..... off the table. BUT this was never my intention!



## **Test no. 8**

So here we are using the bigger battery. This does not fit this van and is basically being used simply to put power into the track instead of a transformer. It works as well as the smaller battery.

In reality the batteries work well enough, give better control than was experienced before with this more direct input method but still only 8-10mm of travel on the stick provides the full extent of the control leaving 3/4 of the stick movement in both directions unused.

Speed from both batteries could be described as a good 'fast scale' speed and there is sufficient power to tackle gentle inclines with a light load of 4 or 5 2 axle vehicles.



## **Conclusions / thoughts.**

This can get me a lot of flexibility to run unmodified analogue locos with a simple setup on a reasonably level layout with good electrical connections around the track. All I need is the ability to get power from a vehicle into the track and this vehicle can be anywhere in the train.

It seems batteries of this size are adequate for the smaller locos and give sufficient power for a short / light train.

Some further Options / considerations are:

I used a basic 2.4 ghz Planet unit.

I have an AM radio Tx Rx unit which might provide smoother servo control therefore better output control. I note all units supplied with my Roundhouse locos provide better smoother control than the planet is capable of. I will try this unit in the future.

To obtain a 5 amp 20v transformer. LGB or otherwise.

To obtain a set of 14,4v NiMH batteries as used by the model car folk as I have several chargers for these too! I have a 7.2v one but this will not provide enough power.

To obtain a trip / resetting fuse. Yes I blew the fuse when the loco jumped a point.

It is possible that all the switch connections etc. through our control panel add in enough resistance to affect the setup. A direct simple wired connection might be enough however we do have isolated sections etc.

So what next in the immediate future?

Well my Corpet loco needs to be tried and the 'Twins', my Saxony IIK should work too from the Post Van setup.

I have ordered a much more modern ESC from Electronize. I discussed this with Alan Millichamp recently however talking to Mr Electronize it seems he has a brand new unit with inertia start and stop designed for use with railways. So I am looking forward to getting my hands on this. His ESC unit is fine for our voltage range 5-20v and rated at 10 amps I believe.

I probably need a bigger power supply probably 2 or 5amp to properly run from a base as originally intended, so this is something to obtain. This will allow the layout to be run through the main control panel and give all the amps we need. If anyone has a second hand 5 amp transformer unit I could be interested - at a reasonable price of course!.

So for a little money - £36 for the ESC I can use my existing radio equipment, my existing battery and get full remote control around the garden.

Batteries and charging are of course an issue and one can spend as much as you like.

Having checked out the local model shops it seems the new types around now could cost well over £70-100 to run an LGB loco that would last an appropriate amount of running time.

A drawback is of course that unlike a full battery-in-a-van mode this still needs full track possession and will not work alongside DCC or uninsulated steam.

Despite this, the locos are run - straight out of the box - which was really my main consideration.

It is not all in place as I would like it yet but the point has been well proved I am very pleased with these later results and hopefully my updated flexible RC system will be fully ready soon.

In fact It could be built into a small box including volt & amp meter and carried around to work anywhere. It could easily be simply plugged into one circuit of the club layout for instance. I suspect our large transformer is more than capable of providing a good output. I might have designs on it now.....



## Day 3

### Test no. 9

So I started looking on a certain auction site, for an LGB 5 amp controller, what a lot of money they are! Next up look for a regulated power supply. Well well what also pops up? a picture of a laptop power unit. Well now I have a few of those!

Looking on the data chart on the back reveals one at 19.5v 7.7 amps and another at 19.5v 4.7 amp.

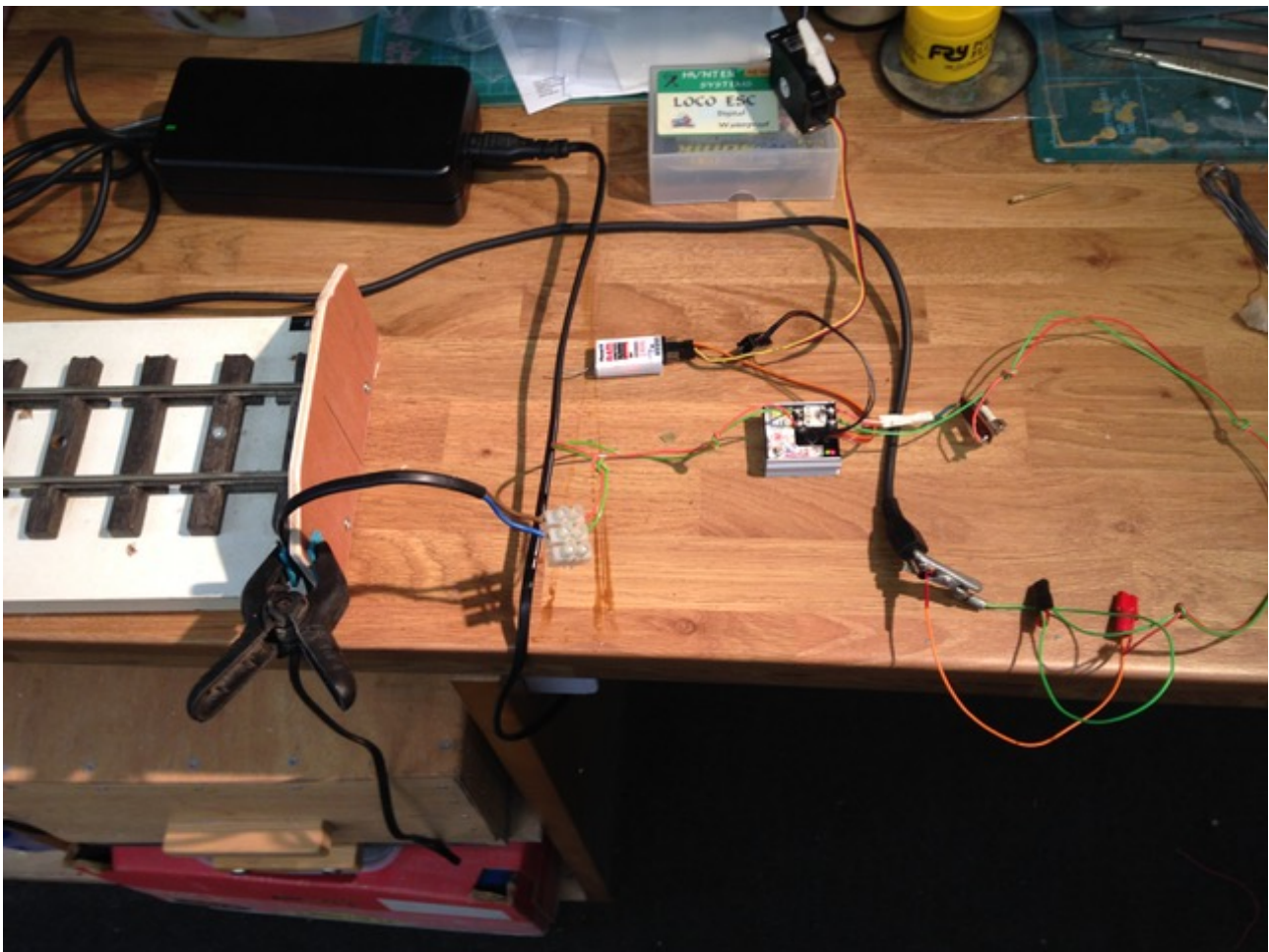
So off to the workshop it is.

A rainy day so no track testing this time ah well!

Our yard length of track and some rollers were fished out.

A quick look at the Sony power unit reveals the type of plug that no bugger else makes. Ho hum etc. only to be expected I guess.

Well some phosphor bronze strip, insulation and croc clips soon sorted this out!!!



I had not run the Corpet so out it came. All wired up and NOTHING Oh no what this time? Our small 0-4-0 shunter was tried and worked yeah!

Despite 'playing trains' all these years I have been spoilt with the Massoth system. SO what does this mean to me?

Well I had overlook one little factor of analogue locos.....

That little switch on the back head.....DOH!



So it ran well and smoothly once switched on.....

Next up the Saxony IK. Smoke and movement yeah!!!!





## **Conclusions and comments**

Both these laptop power supplies have run the loco well. I am not surprised as we have not required more than 3 amps on analogue locos. The Massoth may of course be putting out more for the 2-10-2 when the sound lights and smoke are all going!

The control via the radio control 'stick' is now most of the movement so a huge improvement. I expect that under load with a few coaches and the added resistance through the control panel / track this will now be full movement.

Neither power supplies ran warm which they do when driving a laptop so they must be handling the LGB loco easily.

The ESC unit ran very warm but still just touchable after 15 mins of slow running on the roller bed. So this is well within its ability but the heatsink needs to be on an appropriate surface if we are going to run for a while in the garden; no plastic boxes or blistering the nice tabletop varnish etc!!!

It is apparent that this ESC unit still has a preference for better control in one direction. It is very 'lumpy' in one direction and gives greater speed and smoother control in the other. This probably means old technology and can be overcome by checking this on setup and choosing the preferred direction for the loco. Of course this is not what should be expected as the direction change is simply a switch within the electronics. but this what I am experiencing so answers on a postcard please.

At this time I am still waiting for my fancy Electronize ESC unit and this should be the right thing.

I think this is probably the general solution I was wanting. I can now have 'Out of the box' analogue loco running for any loco but with the bonus of simple remote control.

Of course I have the benefit here at Kenwater of a railway laid out and designed for track control and we have worked hard with copper jumper leads to ensure good continuity throughout.

I am very pleased with the further idea of control from a vehicle as tested earlier. I will need to test some larger batteries (if I can borrow some!!!!) before committing to this additional expense and of course I will need to modify a vehicle which was not my intention or keep using the very smart but heavy load Post Van.

I know there are designed systems around at a reasonable price but to me additional this is an additional cost and we have all experienced the 'Train Engineer' and its sometimes crude speed steps / failure to communicate etc. This works well enough in the indoor club situation but my experience of Train Engineer in the garden is that it is vague at best. I have not been tempted to get one!

So I believe this to be a cheap solution and one that with a little more construction effort, can be easily deployed in other gardens without affecting the owners existing setup!!! I cannot understand why I have not done it before.....