

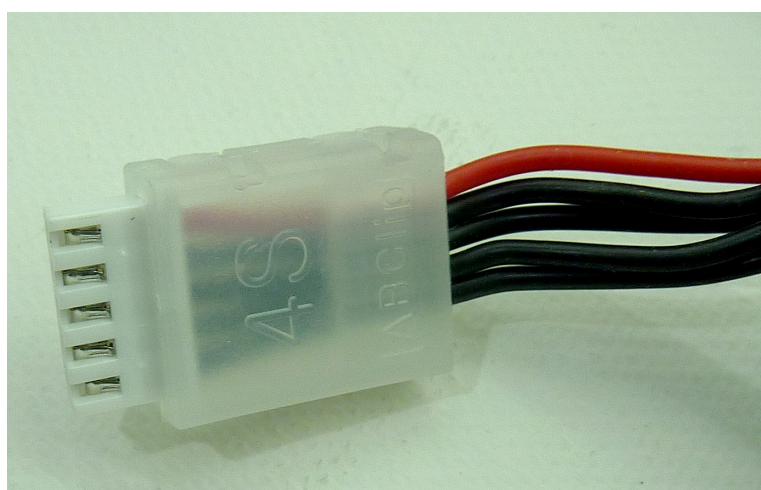
Tests on Youme batteries

In the past I have bought excellent Turnigy batteries from Hobby King. They are no longer available except from the Hong Kong warehouse. Nor is anything else I have tried to order and I wonder if Hobby King has left the UK and Europe. The company is very bad at telling you what is happening.

I must assume the worst so I have to look elsewhere for my lipos. I like to buy from UK suppliers whenever I can but the prices they charge for lipos are often eye-watering. Quality can be a problem too. I bought some cheapish batteries from a reliable online source a year or so ago that turned out to be useless. They had internal resistances starting at 35 mΩ, falling very little after three charge cycles. They went back for a refund. The supplier admitted that he did not test batches of batteries. So my message is take care when buying an unknown brand. Ask around, but if you get no joy buy one and test it out as I have done below before committing a lot of money. Your charger is almost certain to have the option to test resistance.

I covered internal resistance in another article. However, briefly, a battery is made of metals and chemicals that have electrical resistance, internal to the battery. This takes energy from the current, warms the battery, and drops the voltage. Ideal values are between 1 and 4 mΩ. Up to 10 is fine. The value goes down over the first few charge and recharge cycles, or should.

A mate at the club called Mark regularly flies impressive ducted fan models that need efficient batteries. He turned up with some Youme batteries that he had just bought, a name that was new to me. I decided buy a couple of them to replace some Zippys that turned out to be duds when I dragged them out for my old WOT Trainer I wanted to use for buddying. It turned out they were six years old. I got two Youme 4.5 Ah 4S batteries from a supplier on eBay for £45 for the two, very much a Hobby King price.



Balance plug

Pictures Peter Scott

They are very solid and well made. I especially liked the balance plug. Surprisingly they are about 15 g lighter than the old Zippy batteries and the same size. Mine came with EC5 connectors but I decided not to change them to XT90s until I was sure I wouldn't want to send them back. I soldered on the XT90s once convinced all was well. You will need a very powerful soldering iron. Even my 175 W electric gun wouldn't have coped. Some time ago Mark suggested a gas (not gasoline!) powered soldering iron. I bought one and now use nothing else on large gauge wires and big connectors. There is no temperature control so you have to take some care not to keep it running between joints. Wonderful bit of kit.

I measured the internal resistances as delivered, then again after a full charge. I then discharged to storage and did a second full charge. Results below. Being good I then discharged them to storage again after looking at the rotten weather forecast. I will of course continue to check again after more charge cycles.

Battery 1

Resistances in milliohms mΩ

Cell	Delivered	After first charge	After second	After further use cold day
1	17	11	10	10
2	13	6	6	3
3	11	5	5	6
4	13	7	6	9

Total 27 mΩ

Battery 2

Cell	Delivered	After first charge	After second	After further use cold day
1	16	10	9	9
2	12	6	6	8
3	9	7	6	8
4	13	7	7	7

Total 28 mΩ

So these results indicate batteries that are not equal to the very best Turnigy nanotech ones, which have as low as 1 mΩ , but are perfectly good. The batteries were marked with a rating of 60C but that is absurd. At 4.5 Ah that means a maximum current of 270 A. At that current the 27 mΩ would drop the battery by 7.3 V. A more normal 50 A would give a

1.35 V drop so I would rate the batteries as 15 or 20 C. I reckon you need resistances of around 2 on average to rate at 60. If Mark had telemetry it would be interesting to see what drop he got from his ducted fan currents. He has now tried the batteries in a propellor-driven large scale model and estimates 10% more speed. I have found that under full throttle the telemetry voltage drops a bit further than Turnigy batteries.

Following an idea from my mate Keith I wondered if the internal resistances, or at least the differences, are one reason why some batteries last longer than others. Perhaps the ones that last the longest are the ones where all IRs start much the same. A higher value cell would waste more energy and heat up and degrade more so perhaps creating a vicious circle (not cycle!).

The acid test? I'll be buying some more when I need to. Unfortunately at present Youme do not do a full range of sizes. There is no 2.2 Ah 3S for example.

Recovering dead lipos – another hint from Mark

If a lipo has been allowed to discharge very fully, for example by being left hooked up for a day (yes - me), a charger might not recognise that it is there and will refuse to charge it. One trick is to make the charger think it's not a lipo. For example charge it as a NiMH or lead-acid for a while. Once it has some voltage in it the charger might then charge it as a lipo. We offer no guarantee though and be cautious and observant during the charging and with the first flight test.

I have no connection, other than as a customer, with Youme nor the supplier I bought from.

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