

Tip of the Month

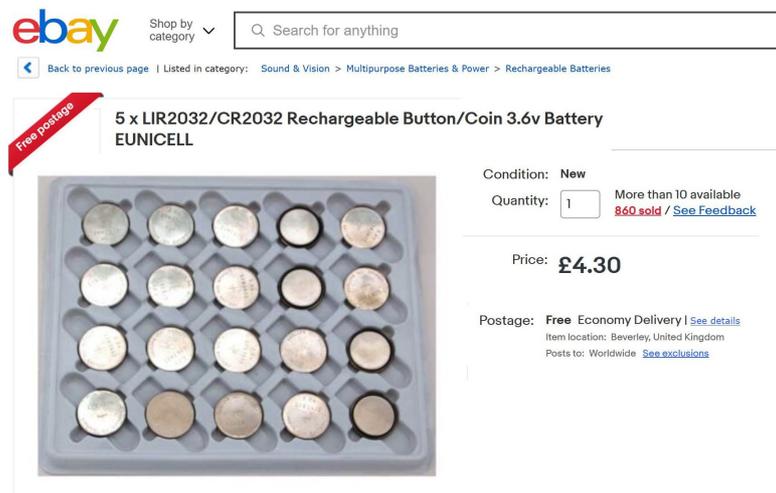
April 2021

Coin cell charger

I saw some write-ups about this and immediately thought of a use for it on our layouts.

The 'Automatic Coach Lighting' kit, PMP19, uses a 3V coin cell battery. The battery has to be replaced from time to time and although they are relatively cheap they can be a pain to remove.

You can buy rechargeable versions of the CR2032 coin cell and chargers for them are also available. However, this would still mean removing the battery from a coach to insert into the charger.



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5 x LIR2032/CR2032 Rechargeable Button/Coin 3.6v Battery EUNICELL

Condition: New

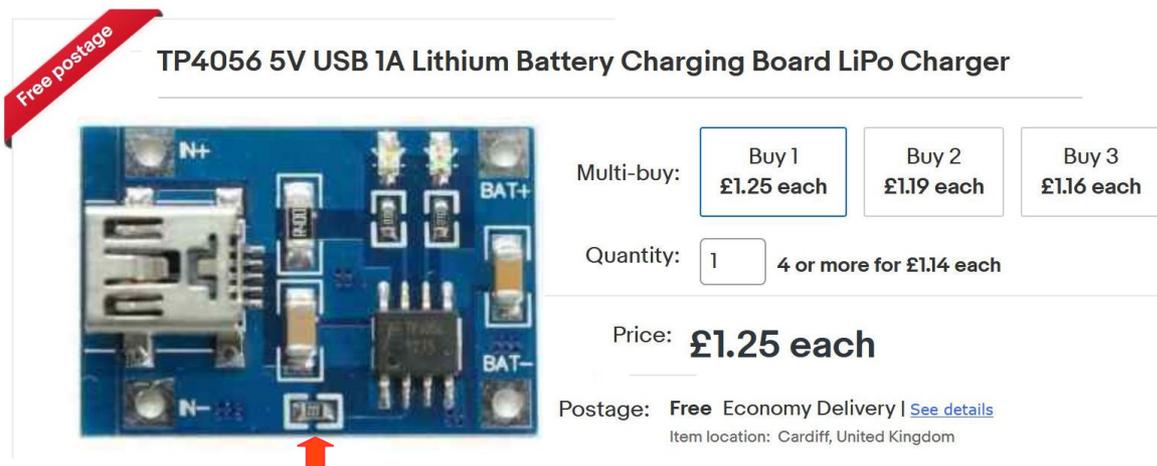
Quantity: More than 10 available **860 sold** / [See Feedback](#)

Price: **£4.30**

Postage: **Free** Economy Delivery | [See details](#)
Item location: Beverley, United Kingdom
Posts to: Worldwide [See exclusions](#)

How about being able to recharge the battery while it remains in the coach? All you need is a two-pin connector wired across the battery, fed from this module.

The TP4056 is a well-known Li Po charger module which is cheap and easily obtained. It connects to any USB port or 5V charger/power bank and the + and – terminals connect across a rechargeable Li Po battery (including our CR2032 cell).



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TP4056 5V USB 1A Lithium Battery Charging Board LiPo Charger

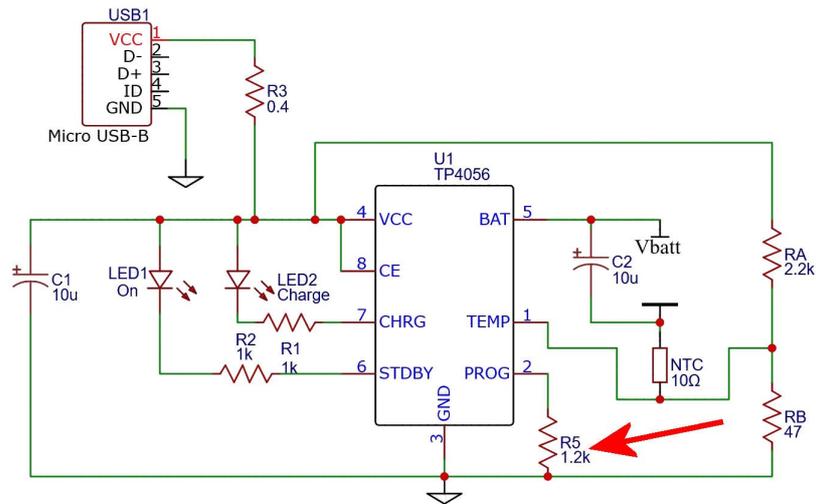
Multi-buy: Buy 1 **£1.25 each** Buy 2 **£1.19 each** Buy 3 **£1.16 each**

Quantity: 4 or more for **£1.14 each**

Price: **£1.25 each**

Postage: **Free** Economy Delivery | [See details](#)
Item location: Cardiff, United Kingdom

As provided, it charges a Li Po cell at up to 1A, which is way in excess of the approx 50mA maximum limit for a CR2032 battery.



However, this is easily fixed.

Pin 2 (the PROG) pin uses a 1k2 resistor to set the max charging current. Red arrows points to it on the schematic and in the photograph. It is marked '122' meaning 1.2k. This should be replaced by a 33k resistor. If you are not comfortable with soldering surface mounts components, you can use a normal 33k resistor. A full charge will take approximately one hour.

I soldered a couple of header pins on to the output pins.

This photograph shows a method of charging batteries for other devices.

The coin cell holder is soldered to a piece of stripboard, A pair of header female sockets is soldered to the stripboard, allowing it to plug in to the charger.



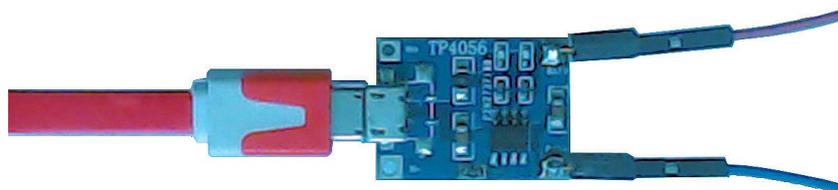
This photograph shows a pair of wires that have female headers.

These wires then terminate on a plug/socket arrangement on the coach.

Male and female headers can be used, with the coach connector tucked away under the coach body.

The battery no longer has to be removed for replacement/charging.

At an exhibition, for example, a coach can be recharged from a phone power bank.



Don't use this charger with cells that are not rechargeable!

Davy Dick