words » Mike Freeman | photos » Mike Freeman / David Ashby

GT Power Pro Quad Charger

MIKE FREEMAN TESTS A AC/DC UNIT CAPABLE OF SIMULTANEOUSLY CHARGING UP TO FOUR PACKS REGARDLESS OF CHEMISTRY OR CELL COUNT

Any electric flight enthusiast will know that to get a reasonable day's flying without much hanging around at the patch waiting for batteries to charge requires a lot of preparatory work in getting those packs all charged up and ready. If there are a variety of packs to charge and there is only one charger, then this can be a long process. If several chargers are used then a large area of the workbench has to be cleared to make room. What would be ideal is a single unit, with the footprint of a single charger that can charge multiple packs of different cell counts and/or chemistries at the same time. The GT Power Pro Quad unit under scrutiny here is just that.

INITIAL INSPECTION

This quirky looking item is essentially four separate charger circuits or channels, all sharing a common control panel, housed in one convenient monolithic tower. Each charger channel is capable of a healthy 100W output – that's 400W in total! Input power comes from either an 11-18V DC or 100-240V AC supply with leads supplied for both. A comprehensive array of charge leads is also supplied as standard along with four JST-XH balance boards and balance leads. The leads are nice and long enabling LiPos to be charged in LiPo sacks if preferred or just arranged more easily on the bench.

The layout of the Pro Quad is well thought out. The input power leads are connected in the back and all four sets of 4mm banana outputs and JST-XH balance board connections are out of the front. These are arranged side by side and labelled channels 1 to 4. An LED above each set of outputs indicates which of the four channels is registering on the screen at the time and it is easy to toggle between them using the Channel button located at the bottom of the control panel. The screen and buttons are located at the top of the tower and angled slightly making them easy to access and read. Also located on top of the charger is a handle which makes it easy to moving around. A pair of built in fans at the back help to keep the unit cool during operation. There's even a pair of 5.3V/2.3A USB charge points in the back that can be used to charge other ancillary equipment like cameras etc.

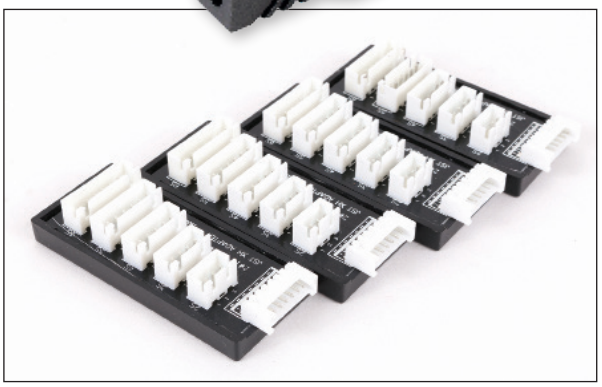
IN USE

The layout of the control panel and the menus will be familiar to a lot of modellers and follow the common four button programming format. For those new to electric flight the manual is well laid out and takes the user through the menus and options. It is quite small with small print though so have a magnifying glass handy!

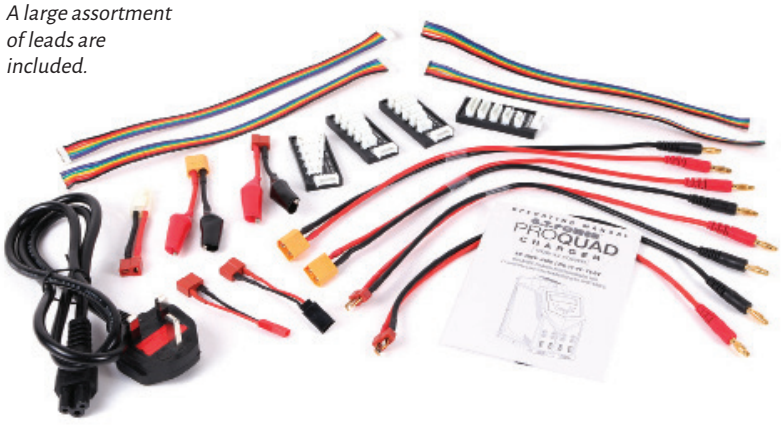
The four programming buttons have a reassuring click when pressed. There is the option to have a 'beep' when the buttons are pressed if more reassurance is needed. The LCD screen is a reasonable size at 2.6" x 0.6" with space for 2 lines of 16 characters. It is back-lit and easy to read. Toggling through the charger channels is easy using the Channel button and the very bright LED makes sure there is no mistaking which set of outputs is registering on the screen and being controlled by the buttons.

Programming is very straightforward. For each of the four charger channels the left button is used to access the initial settings and, in daily use, scroll through the battery types. The middle buttons then cycle through the programs and adjust the settings in any of the selected menus. The right button confirms the selections and starts the selected process.

Having all the connections off the front is

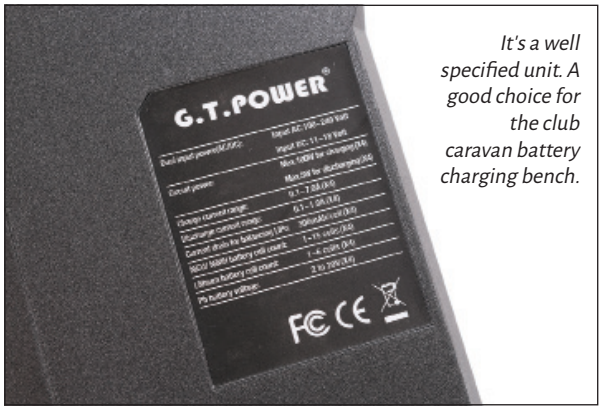


The inclusion of four JST-XH balance boards is something you don't always see with quad chargers.



A large assortment of leads are included.

The rear sockets for AC/DC input. Note the two USB ports too.



It's a well specified unit. A good choice for the club caravan battery charging bench.

The four front charging channel outlets.

Those twin cooling fans aren't at all noisy.

A vertical unit like this has a small workbench footprint - very handy.

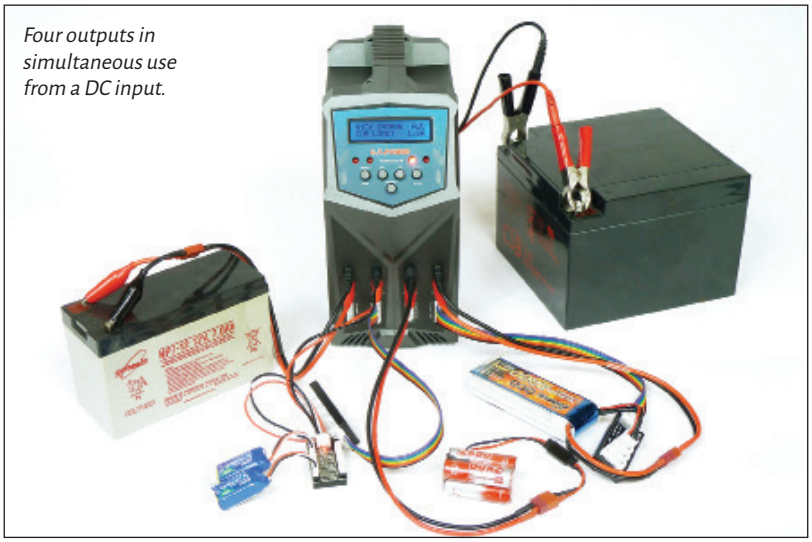
very convenient. The Pro Quad charger can be pushed into a corner of the workbench as there is no need to go ferreting around the sides to find sockets or balance lead ports. It soon becomes second nature to have one screen and set of buttons controlling four separate chargers, the vertical arrangement seems so natural. I find the best way to operate the charger with a variety of battery packs is to start with the left hand channel, set that one up and running and move on through the others. In the photo (below right) you can see I had the following charge/discharge operations going on simultaneously:

Channel 1 -Charging a 12V Lead Acid battery.
Channel 2 -Discharging a couple of small 2S LiPo packs connected in parallel for storage.
Channel 3 -Charging a 4.8V NiMH Rx pack.
Channel 4 - Charging a 3S LiPo pack.

During this exercise the fans in the back were running and, although they could be heard, they were not intrusive. Once all four charger channels were up and running it was easy to toggle through them using the Channel button to see how each one was getting along.

The Pro Quad charger handles all the Lithium cell options including the new high voltage version (LiHV) which have a higher nominal voltage and max voltage at 3.8V/4.35V compared to standard LiPos at 3.7V/4.2V respectively. Charging a standard LiPo pack at the LiHV levels would be disastrous so it is reassuring to see there are two warnings to attend to before the Pro Quad charger will charge at the higher LiHV rates.

For all LiPo packs the 100W per channel is perfect for 3 or 4 cell packs but at the maximum 6S capacity you will only get about 4A output so it'll take a while to charge a high capacity 6S pack. Two features I found particularly useful are the LiPo storage program which automatically decides whether the battery needs to be charged or discharged to give the storage capacity of around 45% - just make sure the number of cells is correct and the charger does the rest. The other handy feature is the Lithium pack and individual cell internal resistance measurement program which is something usually only found on the more expensive

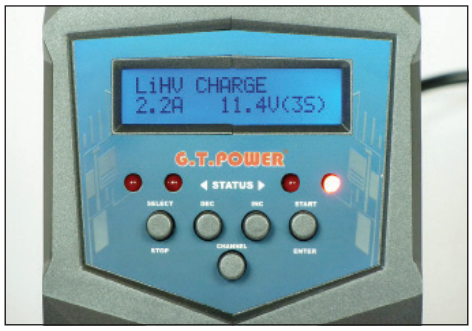


Four outputs in simultaneous use from a DC input.

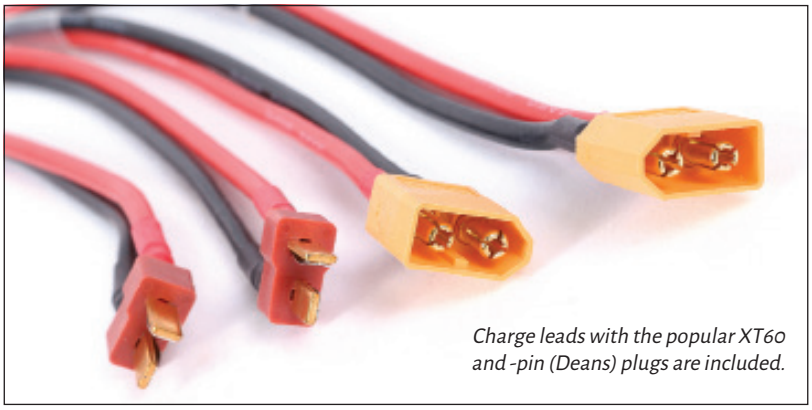
The capacity cut-off screen switches the charger channel off when the output reaches the set point.

A typical alarm screen. In this case I had set the LiPo cell count wrong.

The newer high voltage Lithium cells (LiHV) are catered for.



SCREENS L-R: A special LiHV warning screen, Lithium cell resistance and the familiar in-progress charging info screen.



Charge leads with the popular XT60 and -pin (Deans) plugs are included.

chargers - the Pro Quad has four of them!

Whilst I imagine most users will be using this charger with Lithium cells the good old lead acid (Pb) and Nickel packs are also catered for. NiMH and NiCD cells are charged using delta peak voltage detection and the sensitivity can be adjusted although I found the default settings just fine. There is an Automatic and Manual mode available, both auto detect the number of cells in the pack so it is only necessary to set the maximum charge current required (1C is recommended).

The Pro Quad also has a handy discharge facility per channel, albeit at only 5W. This allows you to cycle NiCD and NiMH cells up to five times and discharge Lithium cells for storage. It is also possible to fully discharge Lithium cells with the Pro Quad but this would take my LiPos down to 3V per cell which is too low in my opinion.

For all chemistries it is possible to set an upper capacity limit and a time limit to each channel to prevent pack overcharging. Both of these features stop the charger channel at the set point irrespective of what the level of charge is. There is a good array of other safety features, error messages and warnings too, the most important being the Lithium cell count checks, of which there are two. The first is a visual check on the screen; the second is a time delayed monitoring of the programmed and actual voltages. Get either wrong and you'll have either an immediate alarm or an alarm after the user set time delay. There are twelve other alarms such as reverse polarity, low individual cell voltage etc., all of which add confidence. As always, never rely solely on the safety features though; always monitor the charging process, especially where Lithium is involved.

There is the option to store up to five commonly used charging programs. Storing the parameters is very easy taking just a couple of minutes. Retrieval takes just a couple of button presses. Mind you, with four chargers there is the option for storing data for up to twenty packs which might be a bit tricky to administer.

I see this charger being a workshop based unit regularly plugged into the mains where full advantage can be taken of the 400W output on offer. Having said that, the handy handle on the top and the DC input mean it could be easily set up as a club charging station, connected to a big leisure battery where members could use one of the four channels to charge up their packs.

ALL DONE

This charger is great, especially if you have a lot of battery packs to charge and only a small space to work in. The programing is very user friendly and the switching between the four charger channels soon becomes second nature. The GT Power Pro Quad Charger has proven itself to be a very versatile, capable charger and a great time saver when preparing for a day of flying. It gets a solid 9 out of 10 from me.

DATAFILE

Name:	GT Power Pro Quad Charger
Product type:	4-way multi-chemistry battery charger/discharger
UK distributor:	4-Max
RRP:	www.4-max.co.uk £149.99
Battery chemistry:	1-6 cell LiPo, Li-Ion, LiFe, LiHV. 1-15 cell NiMH / NiCD, Pb battery voltage 2-20V
Input voltage:	11-18V DC or 100-240V AC
Max charge power:	100W per channel (400W total)
Charge current range:	0.1–7.0A per channel
Max discharge power:	5W per channel
Discharge current range:	0.1–1.0A per channel
Balancing current:	300mA per channel
USB charge points:	2 x 5.3V/2.3Ar
Memories:	1-5
Supplied with:	Mains plug lead, DC plug lead, charge leads, balance leads, balance boards, user manual