SCE's and SCR's on the same Charger

Schumacher Charger PC5

In this months HARD CELL we looked at SCR's and considered the merits of thermal charging these cells. Many drivers finding themselves with chargers designed for SCE charging will not be able to properly charge SCR's without constantly re-peaking the cells to achieve the required higher temperature.

Likewise drivers with SCR chargers cannot safely charge SCE's due to the difference in cut off temperature which is somewhere around 35 degrees C for SCE's and 45-50 degrees C for SCR's depending on make.

Enter Cecil Schumacher who has a one stroke simplified the dilemma for all time by introducing a dual SCE/SCR charger equipped with an easy to read LCD display for temperature and an ammeter to tell you exactly what current your beloved cells are receiving.

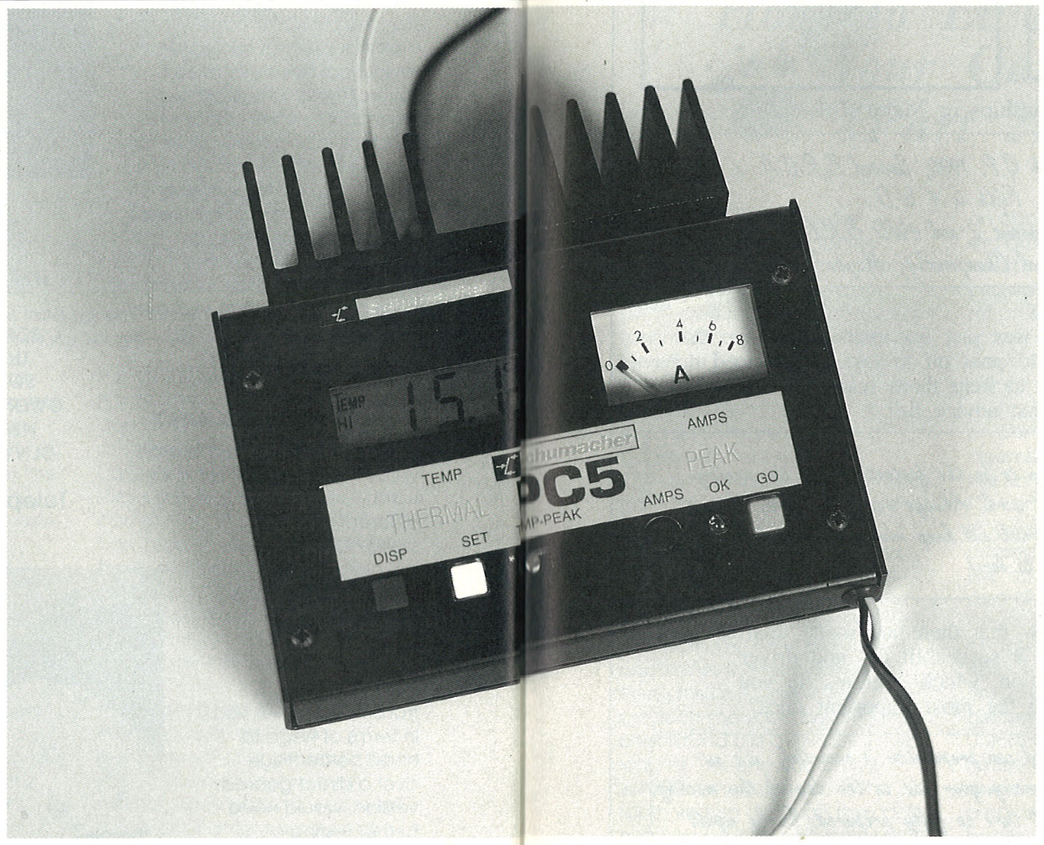
TQ were fortunate enough. I grovelled enough to receive one of these superb units for test. We were quietly confident however that the performance would be more than adequate since Team Schumacher romped home to win the Donnisthorpe 24 hours endurance event using these chargers.

First Impressions.

The case construction is extremely rigid with all controls on the sloping front panel. A large heatsink provides for the single output FET which is fitted such that it is electrically isolated from the case and heatsink. What this means to you out there is that if you prop the charger on top of your car battery it shouldn't go bang if it touches a terminal! The input leads are plenty long enough to reach from the floor onto a bench and croc clips, colour coded red and black are fitted.

Operation.

First fit the croc clips to the car battery. If you do this the correct way round, Red to positive etc a green LED on the front panel will light confirming correct connection. Connect the wrong way round and the unit will just sit there waiting for you to switch on your brain! No damage will be done however- an important point when selling to the young or first time driver or even to the average Sunday racer with a severe hangover!



The setting of the thermal probe cut off is very easy. Two buttons are supplied, DISP (display) and SET. The LCD display reads the current probe temperature continuously which will be the surrounding air temperature unless inserted in a pack. Pressing DISP allows the user to operate the SET button to feed in the required cut off temperature. This must obviously be higher than the current air temperature or the unit will not even be able to switch on!

The nicad is then connected (a standard Tamiya style plug is fitted as standard) and the probe inserted under the heatshrink.

Pressing the button marked GO will then commence charging.

Charge rate is adjustable by means of a small button on the front panel equipped with a screwdriver slot. We found a rate from 2 to 7.75 Amps was available using a fully charged 12 volt car battery as source. It did cross our minds that a more easily adjustable control not requiring a screwdriver could have been provided but second thoughts showed the wisdom of Schumachers decision. Easily adjustable controls have a strange habit of "unadjusting" all on their own especially in pit areas with inquisitive visitors.

When the pack reaches the set temperature, the charger switches off very rapidly. We measured an overlap of less than 0.2 degree C from the set temperature and this was using a digital thermometer costing over £200!

We therefore conclude that the thermal unit is very good indeed. Out of interest we left the probe inside the pack and the unit switched still connected to the car battery but with the thermal unit having switched itself off. After a period of time the pack cooled down to below the set temperature and the charger switched on again recharging until it shut down once more. It is unlikely this would occur at a race meeting as the cool down time was over 45 minutes but it may happen at home if you forget or get called for dinner!

Now to the Peak section. A switch on the front panel changes over from TEMP to PEAK. Current adjustment remains the same but the operation of the charger now relies,on peak detection. Again all that is needed is to press the red button marked GO and the charge begins. The charge current is again constantly variable and for our test tried charging tightly matched SCE's at 7.5 Amps.

The peak detect operated on our test model at a fall back of 0.090 volts from the peak value attained by the cells of 11.15 volts.

At this point the heat sink temperature was 15 degrees C above room temperature. This suggests a very long life for the output FET as it is being kept cool.

We conclude therefore that this is a very versatile charger with every possible option that could be required by the driver.

At a RRP of £76.50 we think this is extremely good value for money.