

Temperature adaptor/ thermal probe module.



Optional motor analyser/ super tuner.

Victor Engineering

HI-IQ Senior

HI-IQ Senior, a Definition

The senior is a multi purpose, user friendly unit that enables you to carry out a variety of different, important tasks. Even more functions can be performed with the aid of a couple of optional add on goodies if you really want the ultimate "pose in the pit" kit.

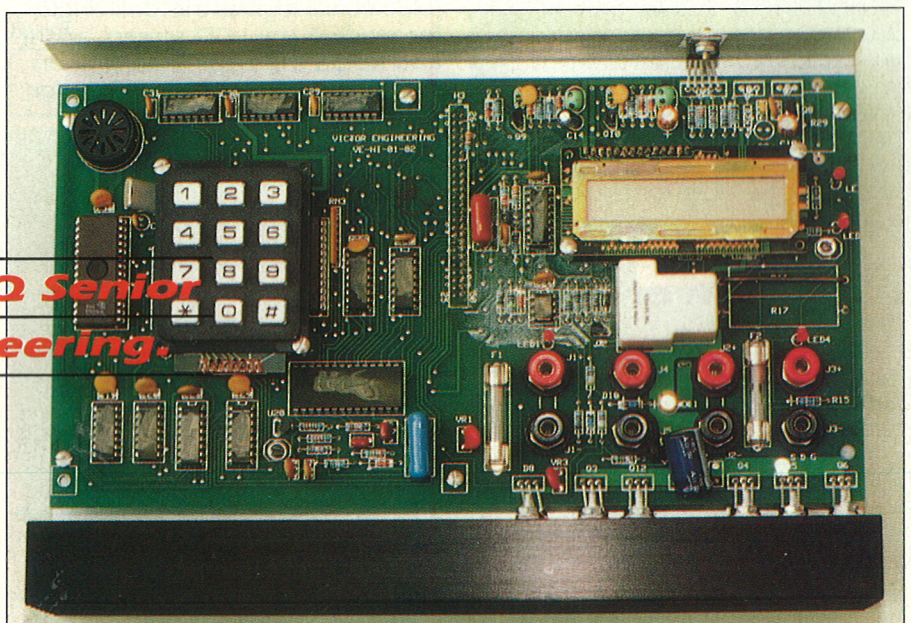
Inside the Senior.

Features

The HI-IQ senior has 15 basic functions as standard (the HI-IQ has 8), but both systems are upgradable so that they can perform 29 functions, which is much more than any other unit available on the market today!

The basic functions of the senior are as follows:

1. Linear constant current charge with peak or timed cut off up to 15 amps with default. The parameters are fully programmable, ie charge rate, number of cells, charge time, etc.
2. Thermal push charge. Same as



RRC tests the HI-IQ Senior from Victor Engineering.

Victor Engineering have been producing high quality electronic components for some years now. Probably the most successful item to date is their HI-IQ charger/discharger/analyser system for R/C model cars. The latest generation of this superb unit is now available, the HI-IQ senior.

above, constant current linear charge with thermal cut off, again up to 15 amps. The snr comes with the necessary "thermal" software, but the thermal probe adaptor module is available as an option.

3. Trickle charge.

4. Timed or voltage cut off linear constant current discharge defaulting at 10 amps or programmable up to 20 amps for 2 to 6 cell packs. (7 and 8 cell packs can also be used however).

5. Discharge same as above but programmable up to 25 amps. This requires stronger circuitry which comes as standard with the senior.

6. Discharge/charge/discharge cycling up to 99 cycles. This function is fully programmable with peak charge and timed cool down periods.

7. Cycler same as above but use cycler with either peak or thermal charge and timed or thermal cool off period.

8. Computerised cell or pack tester/grader for precision matching with default or fully programmable parameters.

9. Quick battery test (3-4 minutes) to see if a battery is fully charged or not.

10. Shocker/revival for reviving deteriorated cells or for 'topping' pre-charged packs just before racing.

11. Motor and gear current draw test.

12. Motor and gear break in cycler.

13. External use of built in digital voltmeter.

14. Electronic stop watch (comes with shocker/revival function 1).

15. Digital thermometer.

It is hard to believe that all of these features are included in just one package, and it is this fact that makes the HI-IQ senior such a unique piece of equipment.

Contrary to what some of you may be thinking it is very simple to use (We know because we managed to use it without any problems!!).

IQ — Power-1

This power supply provides a matched power source to permit the HI-IQ Senior to be used in a domestic environment or anywhere else that mains power is available.

The unit provides a nominal 13.8 volts output at up to 11 amps continuously. Some user adjustment of these figures is provisioned, and the instruction leaflet explains how these should be used and the precautions to be taken if the

current limit is increased.

Operation is of the switching type which provides high efficiency and allows for the use of a small case size without excessive heating problems.

Internal construction is tidy, with the larger components well enclosed against the effect of inadvertent shocks. There appears to be a single re-locatable link to permit change over from 110 volts to 220 volt operation, and vice versa.

MAX. CURRENT RATINGS		FUNCTION		KEY(S)
# OF CELLS	CHRG.	DSCH.		
1	11.0A	25.0A	ON	0
2	12.0A	25.0A	OFF	* and #
3	13.5A	25.0A	cancel, change, skip, abort, inquire (during operation), menu	0
4	15.0A	25.0A	set/mA display	5
5	15.0A	25.0A	set/time display	5
6	15.0A	23.0A	stop	1
7	15.0A	20.0A	charge	2
8	15.0A	17.0A	set/mA data input	Fill any # in cursors

12 button key pad.

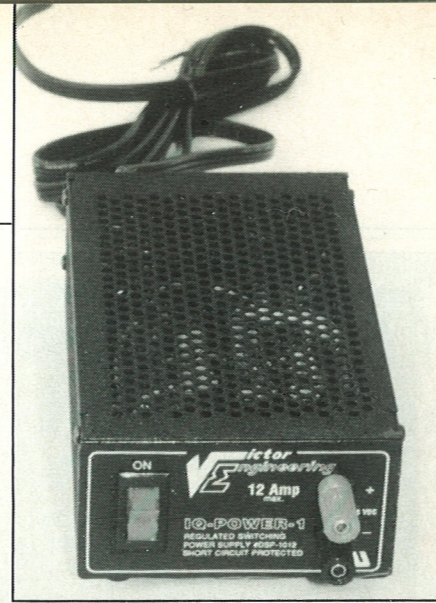
Specifications

The actual physical dimensions of the HI-IQ senior are 280mm x 178mm x 64mm, and it weighs 1.36 kg (3 pounds).

A carrying handle is positioned at the rear of the unit. When this is folded back it gives the ideal angle for reading the LCD screen, and it also keeps the large heat sink on the bottom of the HI-IQ on its edge to maximise air flow, therefore keeping the whole unit as cool as possible.

All the operations for each mode are carried out using a 12 button keypad, which consists of numeric keys 0 to 9 and two 'special function' keys '#' and '*'. The LCD display/screen is very easy to read and utilises two 16 character rows, to give clear, concise instructions and data.

Also included on the front of the senior are two LED's showing if the internal fuses have blown or not, and four sets of input jacks for the 'power', 'meter', 'motor/load' and 'nicad' leads.



Construction

Removing the strong, well ventilated alloy case we find the electronic components of this HI-IQ Senior assembled onto a large printed circuit card. This card is of the double sided type, with the components neatly assembled and wax soldered. The small amount of discrete wire is tidily executed.

All the devices which have to control high power are directly bolted to the substantial, finned, heat sink using liberal doses of heat conducting compound. This ensures that the internal temperature of the semi conductors will be kept low, promoting a long reliable life.

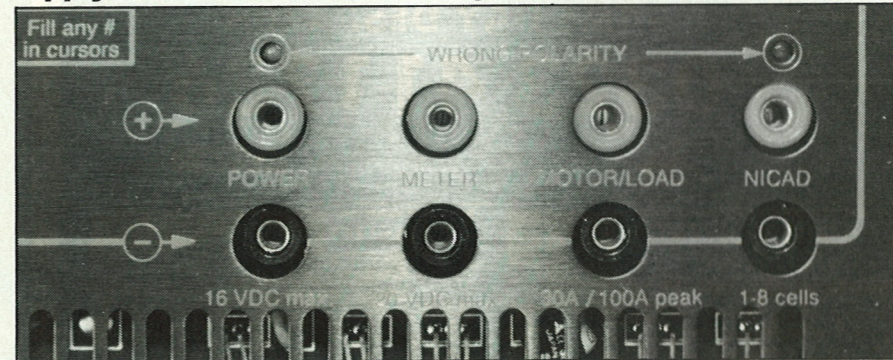
The charger is controlled by a micro-processor (computer) which is hidden beneath the central keypad. The software for the processor resides in a plug-in memory device (PROM) which could be easily changed to permit software upgrade.

Setting it up

Like every other charger, leads coming from the 'power' sockets on the HI-IQ are connected to a 12volt car battery or transformer like the purpose built one shown here.

Victor Engineering IQ-Power-1 regulated power supply.

The power, meter, motor/load and nicad input jacks.



Once this has been done the 0 key is pressed to turn the unit on. HI-IQ greets you with the message

HI CHAMP
I'M HI-IQ SENIOR

followed by

Charge/Disch = 1
Spec. Functions = 2

It's That Easy

To show just how easy it is to use the HI-IQ senior, the basic charge function will be demonstrated. All of the following diagrams are copies of what actually appears on the LCD screen.

So, for the charge mode the number 1 key is depressed, the following is then displayed.

Charge = 1 Disch = 2
Cycle = 3

The same key has to be pressed again for the 'charge' mode, as pressing key 2 will take you to the 'discharge' mode and key 3 will begin the 'cycle' mode.

Peaked = 1 Timed = 2
Trickle = 3

This will now appear, and as you can see three types of charging are offered.

Thermal charging is also an option with the senior model provided you have the thermal probe and module. Whichever one you choose, the following display occurs.

C or D Cell = 1
AA or Other = 2

Here the HI-IQ is asking what sort of cells are being charged. With very few exceptions, the number 1 key will always be pressed here because SC, SCR, SCK and SCE cells are all sub 'C' size.

The cells will now be charging, this is indicated by a quite loud 'clicking' sound. Throughout the

charge process the HI-IQ will tell you how many milliamps are going into the cells, the rate at which they are being charged, the time they have been on charge and their voltage.

The HI-IQ also 'self checks' every .3 seconds to keep the set voltage charge as accurate as possible, and to prevent 'thermal wandering'. This means that throughout the whole charge the current will not alter by more than .2 amps, very impressive indeed!

Once the cells have reached their peak, the HI-IQ 'beeps' to signify this and gives the following information; peak voltage and off charge voltage

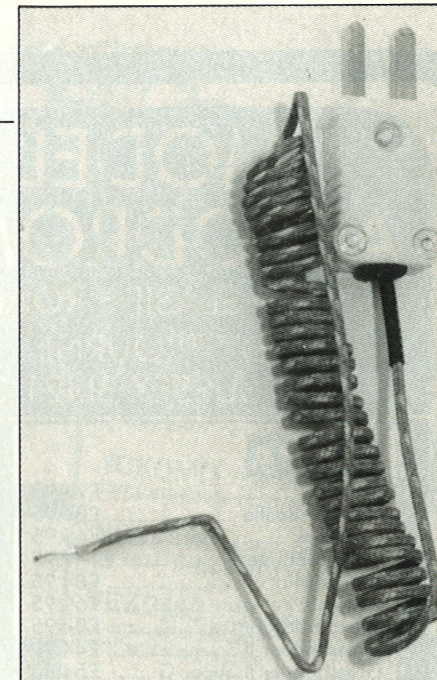
Peaked at 10.95V
Off Charge 8.59V

total charge time and milliamps accepted.

Chrg Time 33m26s
Accepted 1694mAh

The HI-IQ senior then goes into a trickle charge mode to keep your cells fully topped up until you need them.

Trickl Chrg @ .09A
00:59:29 8.77V



The optional thermal probe.

Summary

The most obvious question you must ask yourself is, "is the HI-IQ senior worth £340.00?" It really is a difficult one to answer. The senior does all you could ever want, and more, from a charge/discharge/grading/motor testing etc., etc. system, and it is all in one neat, tidy, well presented and manufactured package.

If you feel that you could take full advantage of all the features the senior offers, it is probably well worth investing in.

Available from Victor Engineering, 380 Camino de Estrella, Suite 170 San Clemente, CA 92672. Phone (714 496 9701).

