Interfacing the Schulze ISL6 charger to a PC

Looking around the internet I found this site:

 http://www.webx.dk/rc/isl6-modi.htm

This got me thinking about the interface and whether there is an easier way. The charger microcontroller serial interface only requires level conversion, something that is common with many PC links with cheap organisers (Casio / Oregon Scientific) – why not use one of the many link cables that people have laying around?

Following some of Thomas Scherrer's information I have modified my charger and written Windows software to interface to the ISL6. The software is freely available from www.srcmc.co.uk and I have classified it as public domain.


Fitting the 2.5mm stereo jack

In order to interface with the Schulze I fitted a 2.5mm stereo jack socket in the pre-cut hole in the case, and using servo wire (black, red, white) connected between the jack and the PCB as outlined Thomas' diagram [black GND, red IN (TXD), white OUT (RXD)].

 This scheme allows much easier wiring as there is no interface to fit inside the case, and allows the same connection lead to be used with organisers etc. You can buy a suitable stereo 2.5 mm jack socket from Maplin Electronics.

The socket should be wired to accommodate a plug according to the following diagram. Three conductor servo cable is suitable for making the connections, solder the cable to the jack socket and leave a trailing lead of ~ 200 mm.
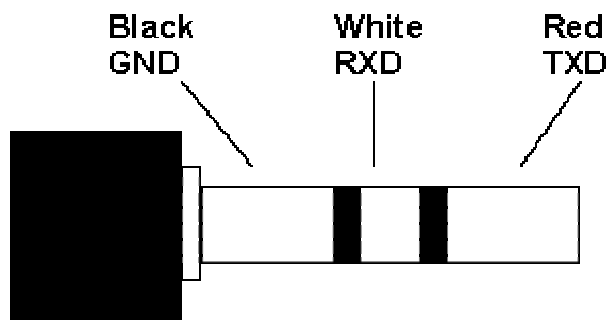

Schulze connection

Black   GND

White   RXD (signal from Schulze)

Red   TXD (signal to Schulze)

Next open the case of the ISL6 charger – the front steel panel clips onto the base. The case cover can be removed via sliding a screwdriver under the case overlap at the depression points. The case cover includes a pre-cut hole for a 2.5 mm jack socket – fit the pre-wired socket into this hole as shown below:
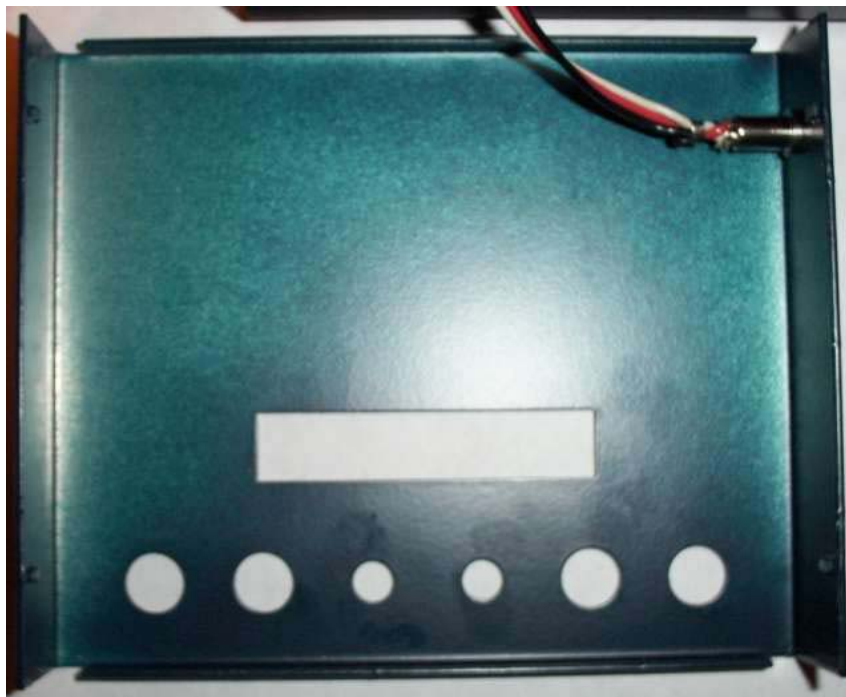

Wiring to the circuit board

The circuit board has holes to accept the wires from the 2.5 mm socket. These are located just above the red button on the circuit board and are shown in the following two images. This bit is simple – solder the wires in!

BLK   WHT
       RED

GND   PC   PC   +5V
       TXD   RXD   Hole

                               RED Button
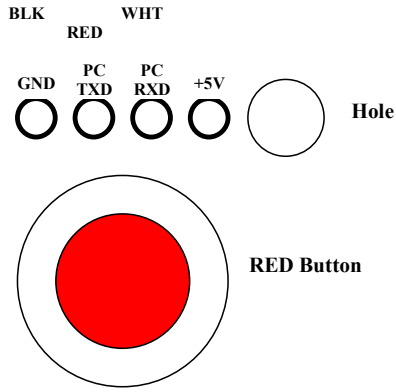
(Picture courtesy of Thomas Scherrer)

Once completed the unit should look mine shown below. Avoiding putting a small circuit inside keeps everything neat and means that the PC interface leads that come with many of the £10-20 PDA's can be used for linking the unit to a PC.
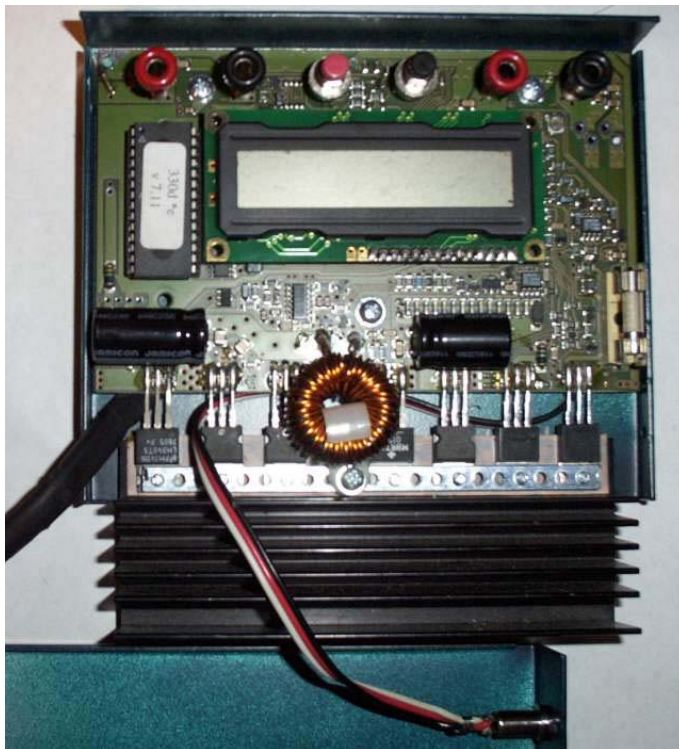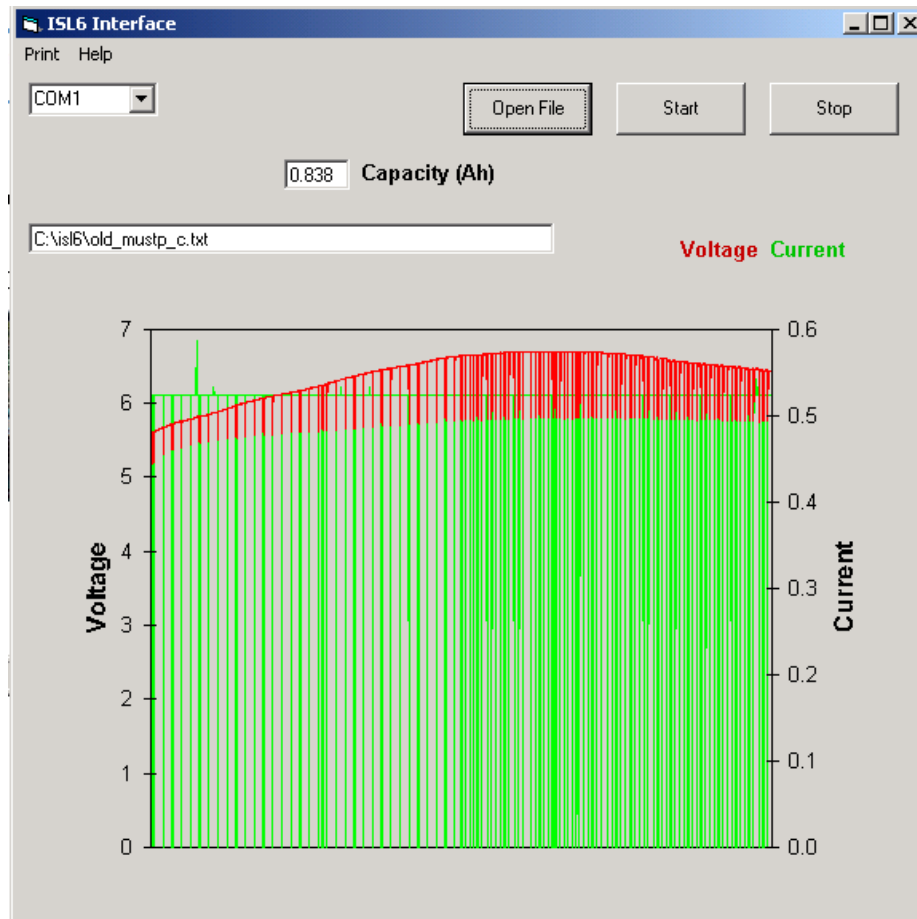

All that remains now is to close the case again and plug in the PC interface!

Software (ISL6_v1_4)

I have written the software to be compatible in all Windows variants later than Windows 95 (i.e. NT, 2000, 98, XP). This software can be downloaded from www.srcmc.co.uk and is Public Domain.

A screen-shot of the software is shown below:

The software has the following features:

- Records voltage and current during a charge or discharge of a pack.
- Displays a graph of the results (real-time).
- Calculates pack capacity.
- Stores data in both native format, and as an Excel compatible CSV file for analysis in spreadsheets.
- Allows data from previous packs to be displayed.
- Prints the graphical data.
- Allows serial ports COM1 – 4 to be used for the interface.

Using the software

1. Connect the Schulze charger to your 12V power source.
2. Connect the interface lead to both the PC and the charger.

3. Select the serial port to be used (COM1 – 4).

4. Press 'Start'.

5. Supply a filename for the created data files.

6. Connect your pack to the charger – recording will start automatically once charging starts.

7. During charging the software will also display the instantaneous data on the front panel.

8. The software automatically stops recording once the charge terminates – to start another pack continue from step 4 above.

Printing

I have included the ability to print the graphs of data. Accessing the 'Print' menu brings up the standard Windows printer dialogue box; please select the printer you wish to use and set the paper orientation to 'landscape' for best results.

Notes about the software

This software is provided as Public Domain and is **FREE**. The author will not accept any liability, however caused, through the use of this software. USE AT YOUR OWN RISK.

Have fun!

Rod Badcock

January 2004