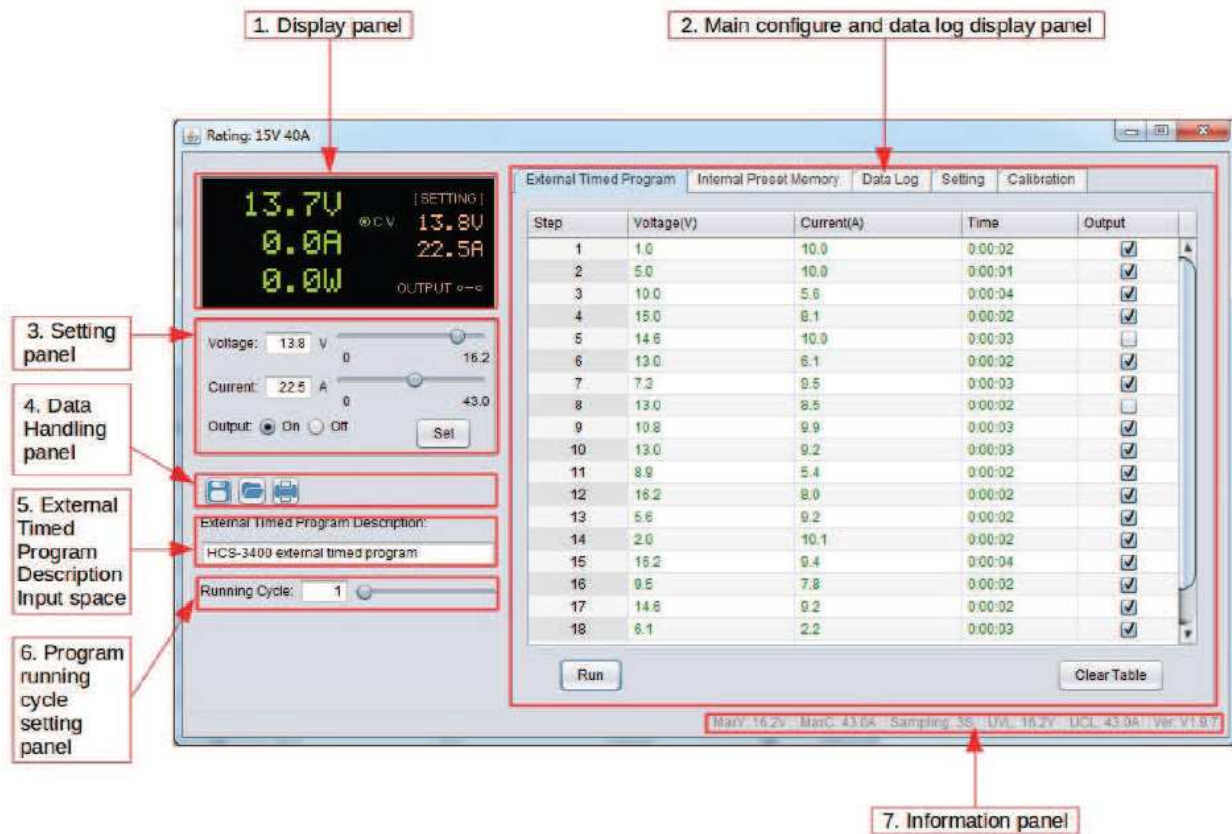# HCS-USB Series PC Interface Software

Supports: Windows XP/Vista/7/8/10 (32bit/64bit)
Driver: Silicon Lab CP210x USB driver

To execute the program, run: <CDROM Drive>:\pscs\pscs.bat

NOTE: For convenience, copy the files on the CDROM to the hard drive and create a shortcut.

A.   Main Display

The main software interface is divided into 7 panels.

1. Display panel – used to display real-time information from the power supply.
2. Main configuration and data log display panel – used to set the programmed sequence and display logged results.
3. Voltage and Current setting panel – used to set the V and C output values and turn the output On/Off manually.
4. Data handling panel – used to Save, Load and Print data.
5. External Timed Program Description – use to enter a title for the programmed sequence.
6. Running cycle setting panel – use this to set the running cycle for the External Timed Program.
7. Information panel – used to display Maximum voltage/current, sample time, upper voltage/current limits and the software version.
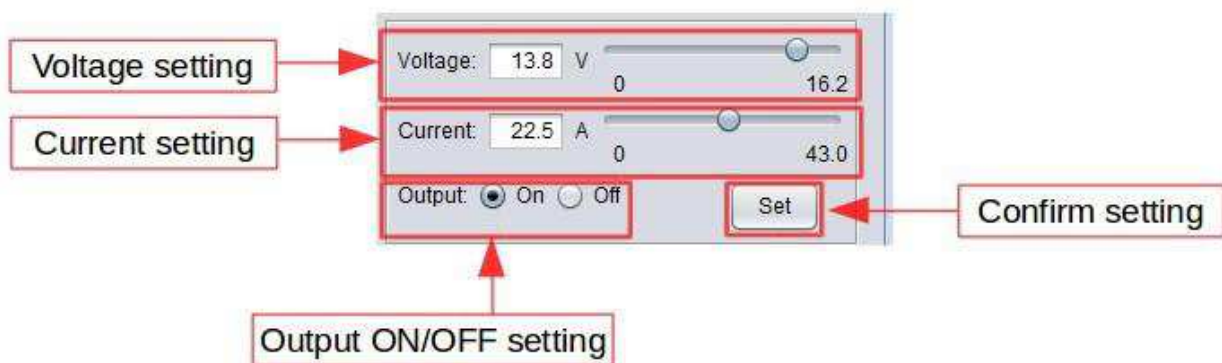
B.   Display Panel
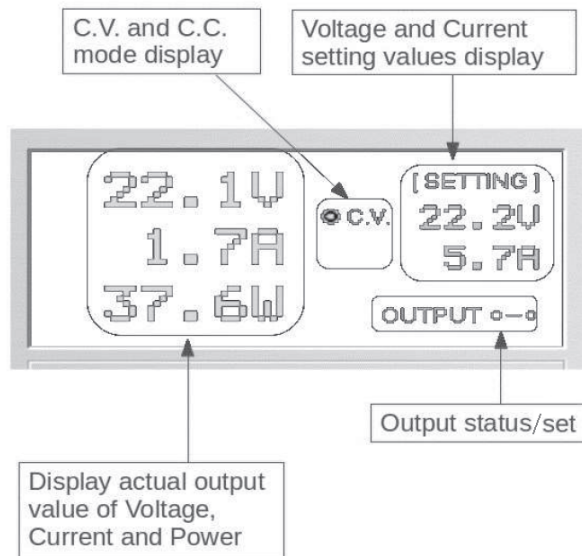
The display panel shows the following information…
- Output Voltage
- Output Current
- Output Power
- Output On/Off status (click to change)
- Constant Voltage (C.V.) or Constant Current (C.C.) operation
- Set values for Voltage and Current

C.   Setting Panel

To set the voltage and current, adjust the slide-bars (using the mouse or left and right cursor keys) or enter the values numerically. To turn the output on or off, click the appropriate button. When ready, click the 'Set' button to transmit the settings to the power supply. The output can also be toggled On/Off by clicking the 'Output Status' switch contact symbol on the Display Panel (see B above).

D.   External Timed Program Tab

The External Timed Program is controlled by the PC. The PC monitors the time duration and changes the voltage and current settings of the power supply according to the data entered.

Select 'External Timed Program' tab to view the 20 step Program Table.
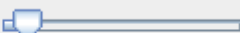- Double click on the cell that you would like to set the value.   For example, Step 2 Voltage.
- Slide the bar to set the value.
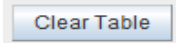- Repeat for Current

- The time duration for the step can also be set by double clicking the Time cell. The time range is between 0 and 9hours 59 minutes 59 seconds. Click to select the Hours, Minutes or Seconds element and then the up/down buttons to change the setting or the value may be entered numerically. If set to 0:00:00, the step will be skipped.

- The Output may be turned on or off by clicking the box on the right-hand-side.

- Select running cycle between 0-999. You can use the slide bar to select the value or directly input the value numerically in the box. An input of zero will run the program repeatedly until it is halted manually.
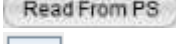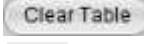
- Click [Run] to start running the cycle.

- Click [Stop] to stop the program at any step.

- Click 🖫 and enter a suitable filename to save the Timed Program as a CSV file.
  A description, in the box provided, may also be entered prior to saving the file.

- Click [Clear Table] to clear the Timed Program.

- Click 📁 to load a previously saved Program. Note, the retrieved data will be in
  red if it exceeds the preset upper-limits of voltage or current.

- Click 🖶 to print the Timed Program table.

E. Internal Preset Memory Tab
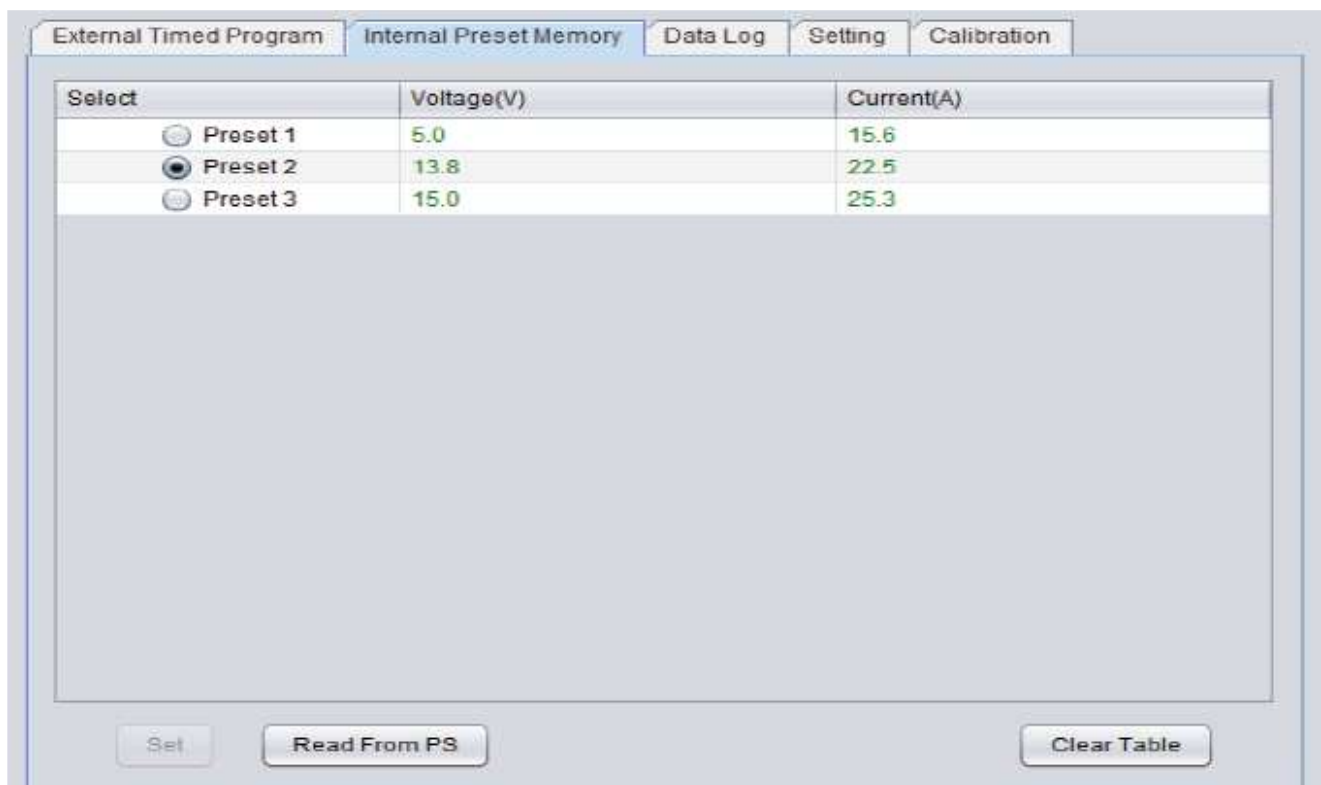
The power supply's internal preset values may be adjusted and selected by the PC under the 'Internal Preset Memory'
tab. Enter Voltage and Current settings by double clicking on the table entry and adjust the value as previously.

- Click [Set] button to download the preset values to the power supply.

- Click [Read From PS] to get the preset values from the power supply.

- Click 🖫 and enter a suitable filename to save the Presets as a CSV file.

- Click [Clear Table] to clear the Preset entries ready for new data entry.

- Click 📁 to load a previously saved Preset file. Note, the retrieved data will be in
  red if it exceeds the preset upper-limits of voltage or current.

- Click 🖶 to print the Presets table.

Click on the Select Preset 1, 2 or 3 button to set the power supply to the corresponding voltage and current.

F. Data Log Tab

Data Log window
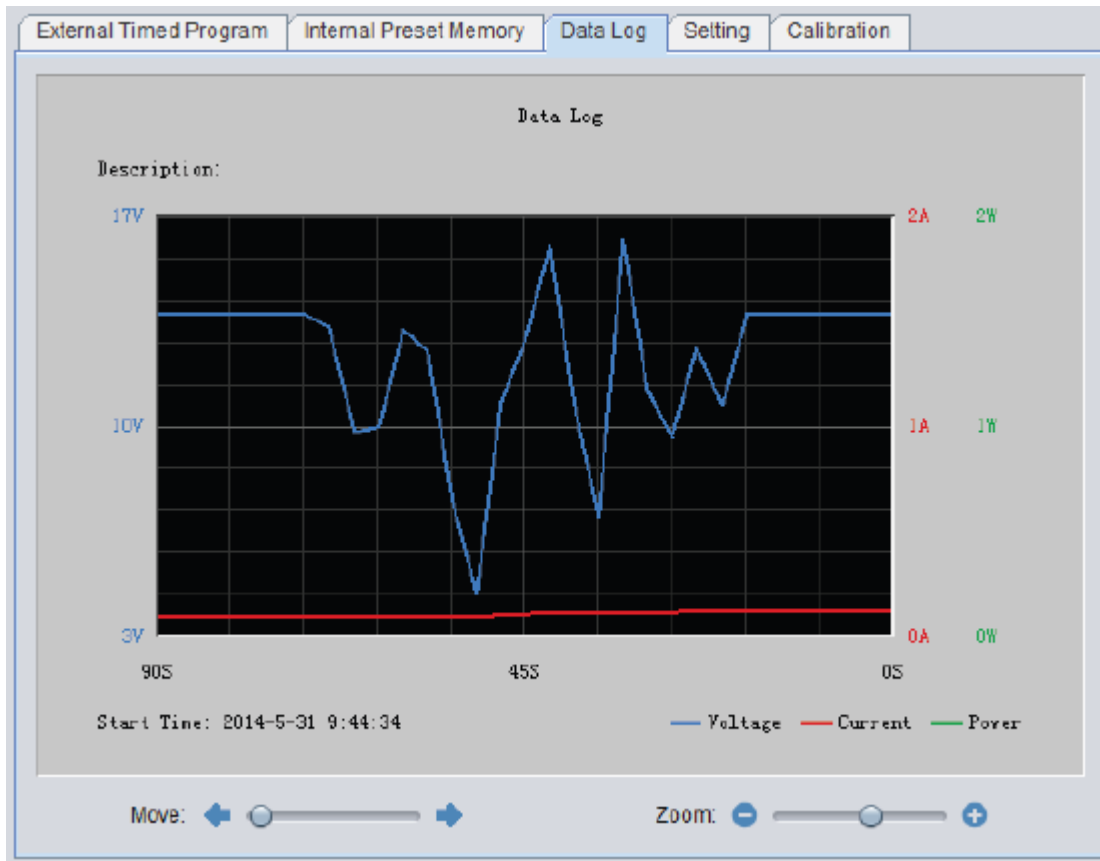
The data log window is used to display the output Voltage, Current and Power against time in a graphical readout.
The display may be moved left and right by adjusting the 'Move' slide bar.
The display may be zoomed in and out by adjusting the 'Zoom' slide bar.

Any data collected may be saved in CSV format for later analysis. Files may be read directly into Excel.

- Click [icon] to save Data log to CSV file.

- Click [icon] to open and load data from previously saved file for analysis.
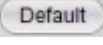
- Click [icon] to print the graphical display window.

H. Setting Tab

In the 'Setting' tab, a number of parameters may be adjusted.

1. Selection of the language for the program.
2. Selection of the COM Port for the power supply under external control.
3. Adjustment of the sampling time for data logging.
4. Adjustment of the output voltage upper limit (UVL) value to safeguard sensitive equipment.
5. Adjustment of the output current upper limit (UCL) value to safeguard sensitive equipment.

- Click [OK] button to accept the new settings.
- Click [Default] button to restore all values to the default setting.

6. Update the power supply's firmware (firmware version 3.1 and above).

# I. Power Supply Calibration (firmware version 3.1 and above)

* WARNING: IT IS HIGHLY RECOMMENDED THAT THE CALIBRATION PROCEDURE IS PERFORMED BY EXPERIENCED TECHNICAL PERSONAL.

The HCS power supply can be calibrated by using Manson PC control software. A Digital Multi-meter (DMM), a suitable current shunt and a DC Electronic Load (or a resistive load) capable of maximum current draw are required for calibration.

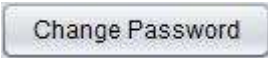Please connect as shown below for Voltage and Current Calibration:
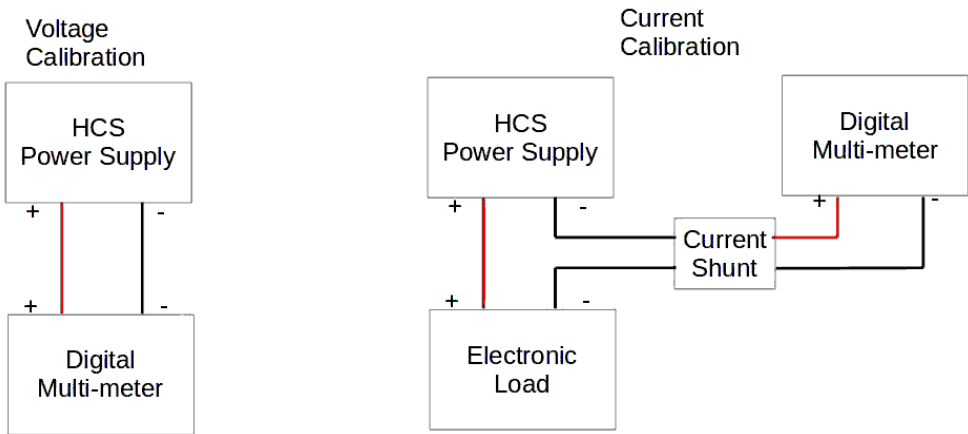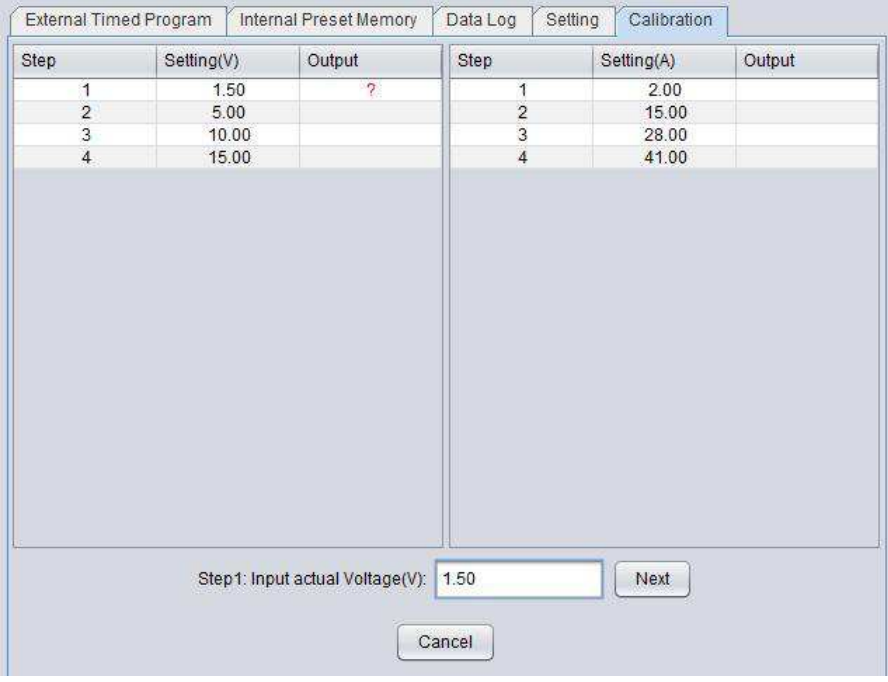

Select the 'Calibration' tab…
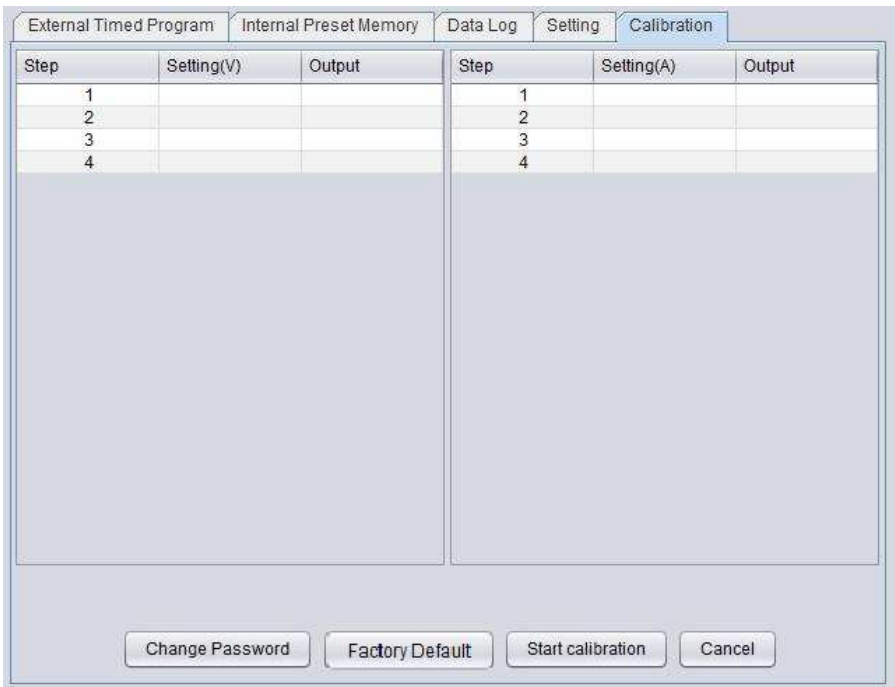
A password must be entered; the default password is 'password'.

After login, you can change the password by clicking ⟦Change Password⟧ button .

The factory default calibration can be recovered by clicking ⟦Factory Default⟧ button. Always perform this before proceeding with the calibration process.

Click **Start calibration** to run the calibration process.

Step	Setting(V)	Output	Step	Setting(A)	Output
1	1.50	?	1	2.00	
2	5.00		2	15.00	
3	10.00		3	28.00	
4	15.00		4	41.00	

Tabs: External Timed Program | Internal Preset Memory | Data Log | Setting | Calibration

Step1: Input actual Voltage(V): 1.50   Next
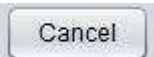
Cancel

There are total eight steps to the calibration procedure, four steps for Voltage and four steps for Current. Follow all these steps in sequence to complete the calibration process.

Voltage calibration is first. DO NOT CONNECT ANY LOAD during Voltage calibration. As shown in the above figure, the power supply will automatically set the output voltage for each step. Measure the actual output by using the Digital

multimeter (DMM) and enter the actual Voltage, then click **Next** to continue to the next step.

After the Voltage calibration, the Current calibration will start. CONNECT THE ELECTRONIC LOAD as shown for the current calibration. The calibration steps are similar to the voltage calibration.

Click **Cancel** to terminate calibration at anytime.

APPENDIX

HCS USB configuration for remote USER programming

This application note describes the procedure to configure the USB port for HCS remote programming applications.

The HCS remote programmable power supply with USB can connect to a PC (or other device) through any USB port.

The HCS USB connection uses a CP210x serial bridge design. When connected to a PC, it will be converted to a COM port shown in the screen capture below. e.g. COM3
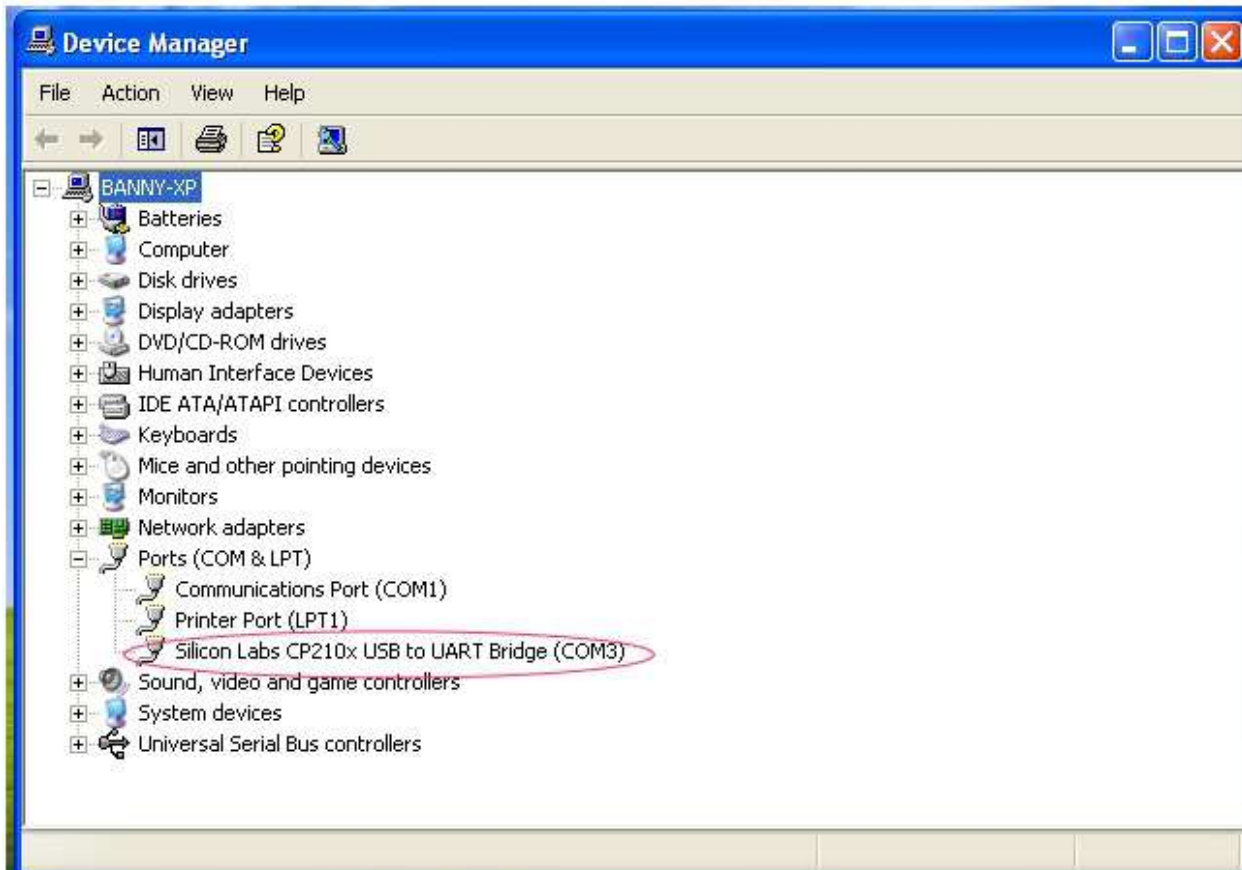
If a COM port does not show up when you plug the HCS in, please check that the USB driver has been properly installed. The USB driver comes with the HCS software CDROM. Make sure the CDROM has been loaded to computer first. Then it can be programmed as a standard COM port.

The default COM port settings are:

> **Baud rate: 9600**
> **Data bits: 8**
> **Stop bits: 1**
> **Parity: None**

The HCS then can be programmed by remote control by simple ASCII commands via the COM3.

The command set can be downloaded from:

www.procontechnology.com.au/files/hcs_cset.pdf