

HBC SOFTWARE INSTALLATION

Introduction

There are two software in the CD, one is the USB Driver for the USB socket, the other one is the Charge Program for the self-defined charging profile of the charger.

First install the USB Driver into the PC so that your PC can communicate with the charger.

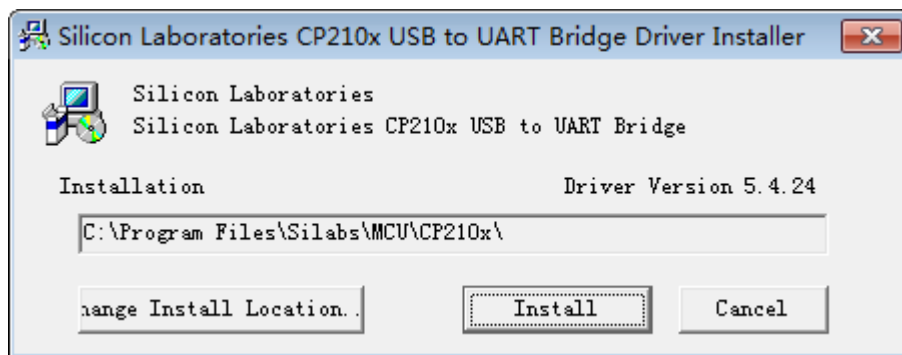
After installation of the USB driver then install the Charge Program software to your PC.

Compatible Operating Systems:

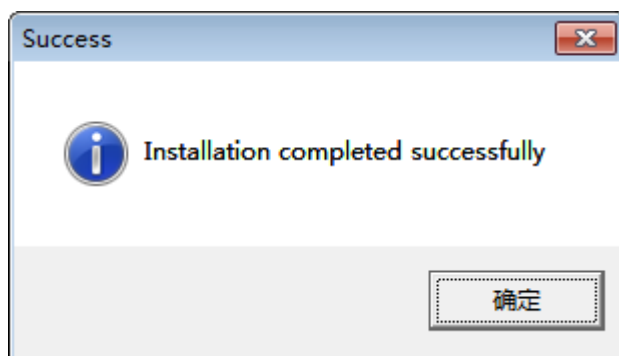
This software is compatible with 32 bit computer and operating systems of Win Vista, XP and Win 7.

1. Installing the USB Driver

1.1 (CD)\USB Drivers for Win_2K_XP_S2K3_Vista\CP210xVCPInstaller.exe



1.2 Click [Install] to get to



1.3 After installation of USB Driver, connect the HBC Charger to PC via USB cable.

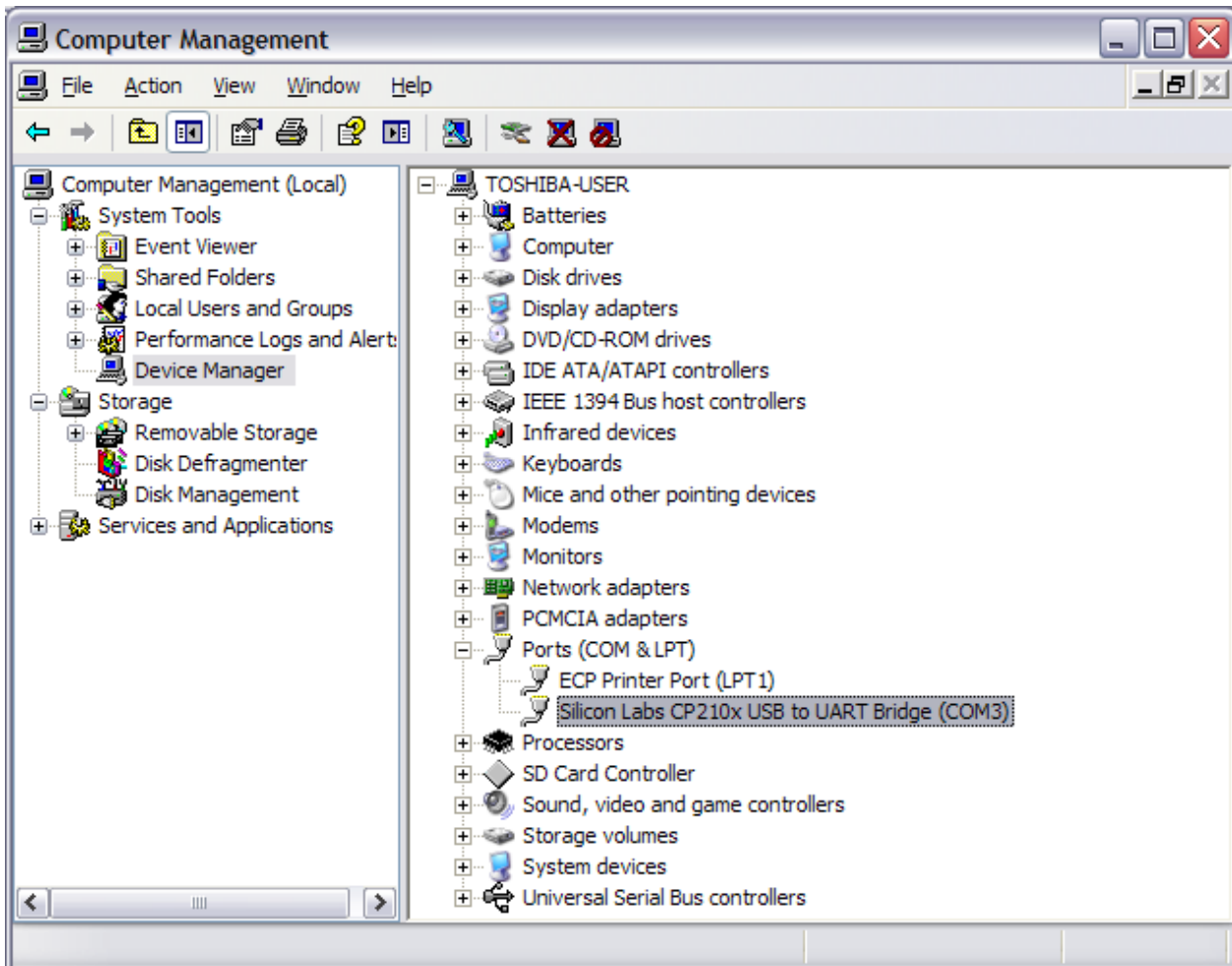
1.4 Go to the Computer Management window and click on the Device Manager

At the Ports (COM & LPT1), you should find "Silicon Labs CP210 x USB to UART Bridge (COM)".

An available Com port number will appear on the Computer Management Window.

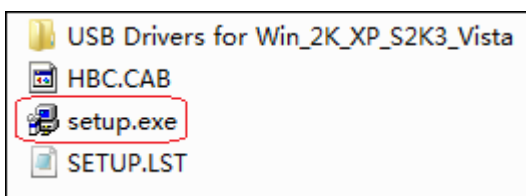
In this example it is COM3 is available and has been selected.

This confirms the USB Driver has been successfully installed.

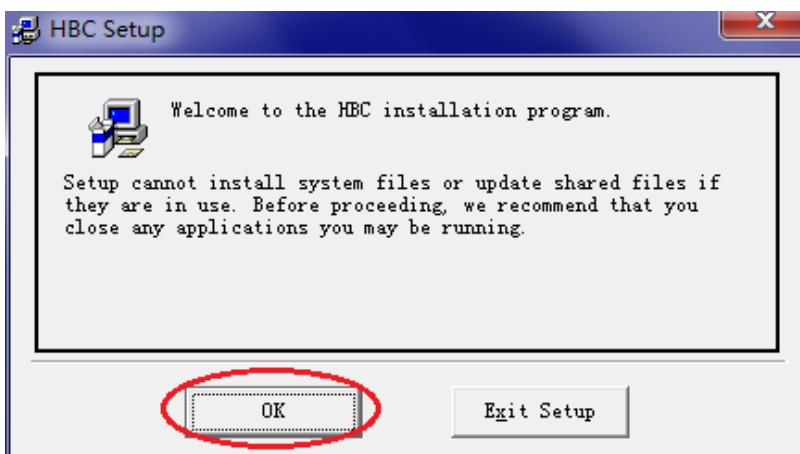


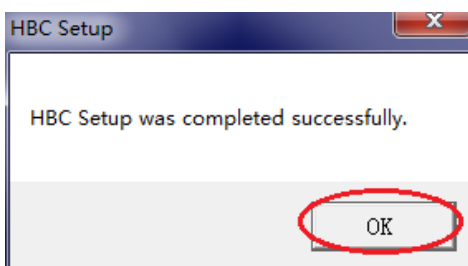
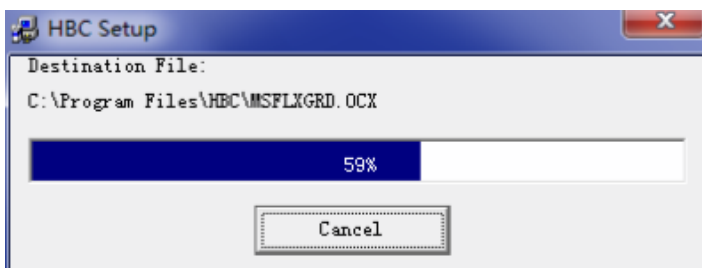
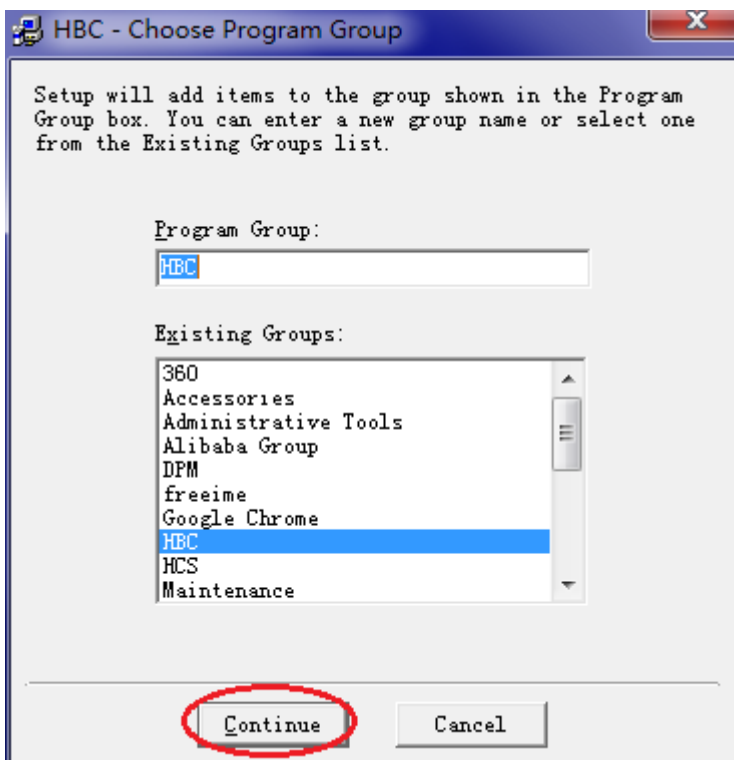
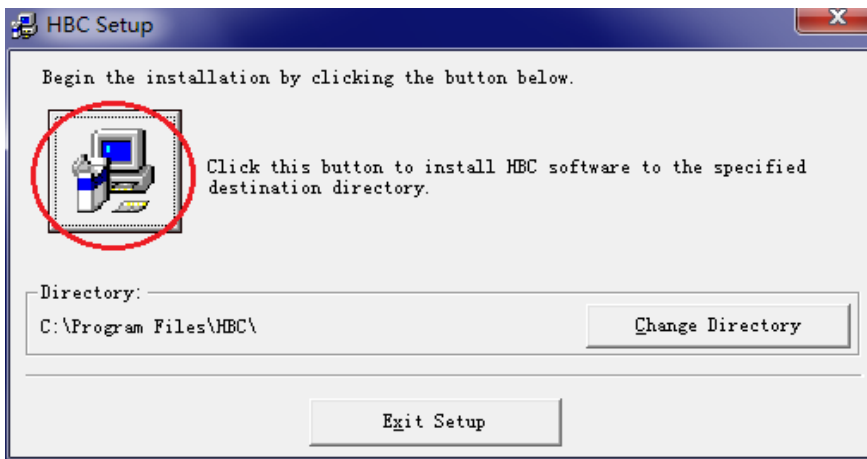
2. Installing the HBC Charge Program

2.1 Double click on (CD)\setup.exe



2.2 Follow the steps as shown in the following windows, it may take a few minutes to install this software.





2.3 You will find the HBC Charge Program/ Icon in your computer.

3. Using the User Defined Charging Program

3.1 Connect a USB cable to the PC and charger which is not connected to battery.

Switch on the charger and run the HBC Charge Program.

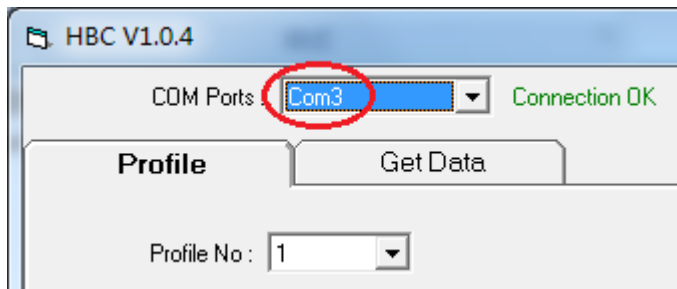
3.2 Select a COM Port number that matches the USB com port number.

3.3 You can find your USB Com number from your device manager as shown in window at section 1.4.

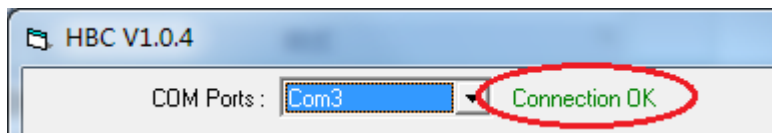
In this example is COM 3 for the USB Com Port and also Com 3 for the Charger Program.

3.4 Now your PC can communicate with the Charger via the USB using the HBC Charge Program software.

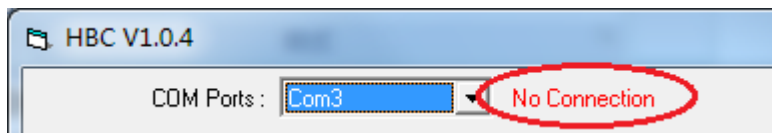
3.5 The following windows show the sequence of a successful communication connection.



a) If the configuration is successful “connection OK “ will appear .



b) If configuration fails, “No Connection” will appear.



3.6 Trouble shooting for No Connection

- a) Check USB cable connections are secured at both ends.
- b) Check Charger has been switched on.
- c) Make both Com port numbers (one from USB port and one at the Charging Program are the same).

3.7 Overview of the HBC Charge Program

There are two main functions of this program , the “ Profile” allows user to adjust the charging profile such as charging stages , protection threshold values , conditions to move from one stage to next stage. There are 4 charging stages available , and threthold values of voltage , current and time that can be set for moving from one to next stage.

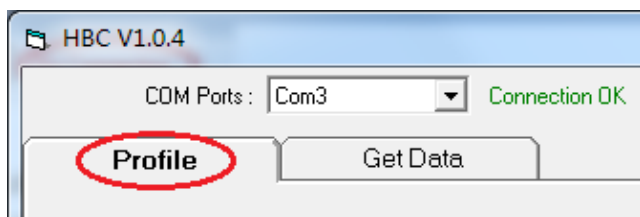
Warnings:

1. *It is not advisable for non-technical minded users to use this user defined charging program as it is still not fool proof as we want to allow certain flexibility of those end users who would like to experiment with their own charging profile.*
2. *The user defined charge program is only suitable for stand- alone battery, no load is allowed to connect to the battery when using this charging program.*
3. *In the entries of the settings for PROTECTION CONDITIONS → CHARGE STAGE → STAGE CHANGE TO NEXT CONDITION always follow this sequence. DO NOT GO BACK TO CHANGE THE SETTING OF PREVIOUS STAGE SETTING otherwise alarm may be triggered. SHOULD YOU REQUIRE TO GO BACK AND CHANGE, DO THE WHOLE PROCEDURE ALL OVER AGAIN.*
4. *TO GET OUT OF THE ALARM, SWITCH OF THE CHARGER SET TO WET OR ANY OTHER BATTERY TYPE AND SWITCH BACK ON THE CHARGER THEN KEY IN THE CORRECT VALUE OF SETTING .*

PRECAUTION

Before proceed to set the profiles, make sure the Switch 4 is not in position 7 or 8.

3.7.1 Profile: setting of user defined charging profiles



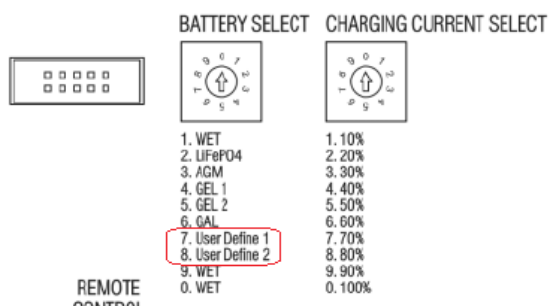
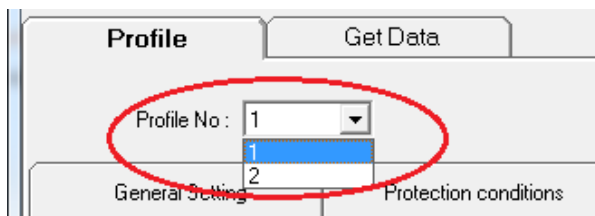
There are two self defined charging profiles: Profile 1 is set by position 7 and Profile 2 set by position 8 at your charger panel. See user manual CONTROL & INDICATORS, switch4.

User defined Profile 1 corresponds to Position 7 at your charger BATTERY SELECT SWITCH

USER defined Profile 2 corresponds to Position 8 at your charger BATTERY SELECT SWITCH

PRECAUTION

Before proceed to set the profiles, make sure the Switch 4 is not in position 7 or 8.



HBC V1.5.1

COM Ports : **Com6** Connection OK

Profile Get Data

Nominal bat Voltage : **12V** Rating : 12V 60A 900W.

Profile No : **1**

Stages setting: Number of stages : **4**

Protection setting: Maximum total charging time of all stages : **6** H (4 - 24)

| CHARGE STAGE VOLTAGE & CURRENT SETTING | | | | CONDITIONS OF MOVE TO NEXT STAGE | | | | |
|--|-------------|-------------|-------------|--|----------------|----------------|----------------|-----------------|
| Stage 1 | Stage 2 | Stage 3 | Stage 4 | Stage Conditions | Stage 1 to 2 | Stage 2 to 3 | Stage 3 to 4 | Stage 4 to 1 |
| 15 V | 14 V | 13 V | 12 V | Charging voltage above (V) | or 11.8 | or 12.8 | or 12.8 | and 11.8 |
| 11 A | 12 A | 13 A | 14 A | Charging current below (A) | none 0 | or 1 | none 0 | none 0 |
| | | | | Charging time of this section above (Minute) | or 13 | or 2 | or 30 | and 100 |

Red color means wrong entry or conflict of previous setting .Recheck just entered setting .

** Stage 1 to 2 charging current condition cannot be used due to conflict with self check on power up .

OK

PRECAUTION

Before proceed to set the profiles, make sure the Switch 4 is not in position 7 or 8.

Nominal bat Voltage : **12V** Rating : 12V 60A 900W.

3.7.2 Power Rating of the charger:

The software will automatically recognize the power rating of the charger.
So no setting is required.

Stages setting

Number of stages : **4**

3.7.3 Setting of number of stages for charging

One to four stages can be selected.

3.7.4. Protection conditions setting

Protection setting

Maximum total charging time of all stages : H (4 - 24)

Maximum total charging time of all stages (in hour):

Charger shuts down output if the total charging time accumulated of all the 4 stages (if you set 4 stages) longer than this set limit in hour. We limit the range 4 to 24 hours, any setting outside this range will be automatically adjusted.

3.7.5 Charge Stage setting

| CHARGE STAGE VOLTAGE & CURRENT SETTING | | | |
|--|-----------------------------------|-------------------------------------|-----------------------------------|
| Stage 1 | Stage 2 | Stage 3 | Stage 4 |
| <input type="text" value="15.8"/> V | <input type="text" value="14"/> V | <input type="text" value="13.5"/> V | <input type="text" value="15"/> V |
| <input type="text" value="11"/> A | <input type="text" value="12"/> A | <input type="text" value="13"/> A | <input type="text" value="14"/> A |

There are 1 to 4 charging stage that can be used, each has its own charging voltage and current limit.

If any set value is in conflict with the logic of the program, the number will turn to red color and the

OK

cannot be pressed also the color of OK is vague.

3.7.6 Conditions of Move to Next Stage:

| CONDITIONS OF MOVE TO NEXT STAGE | | | | |
|--|--------------|--------------|--------------|--------------|
| Stage Conditions | Stage 1 to 2 | Stage 2 to 3 | Stage 3 to 4 | Stage 4 to 1 |
| Charging voltage above (V) | or ▼ 11.8 | or ▼ 12.8 | or ▼ 13.3 | and ▼ 11.8 |
| Charging current below (A) | none ▼ 0 | or ▼ 1 | none ▼ 0 | none ▼ 0 |
| Charging time of this section above (Minute) | or ▼ 13 | or ▼ 2 | or ▼ 30 | and ▼ 100 |

These are the available threshold parameters that cause shift of charging stage to the next one, it is not necessary to use all the parameters. The inter-action among the parameters is controlled by the following logic:

None means skip this condition

And means must get to this condition to move to the next stage

Or means any one the selected conditions will move to the next stage

Note: It is not permissible to have “And” with “Or” in the stage

Always press “OK” key to store set conditions.

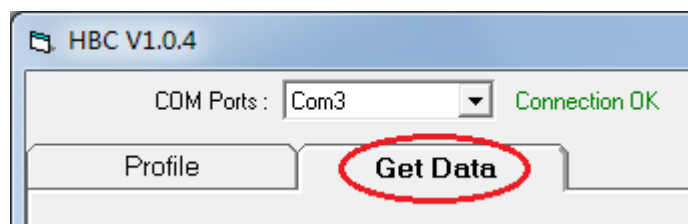
Precaution:

Do not use Condition “Charging current below” for Stage 1 to 2 as this is in conflict with the self check program of the charger at start up. Set Stage 1 to 2 using voltage (or/ or), (and/ and) timer for one minute to allow completion of self check at power up of the charger.

Using the user defined charging profile

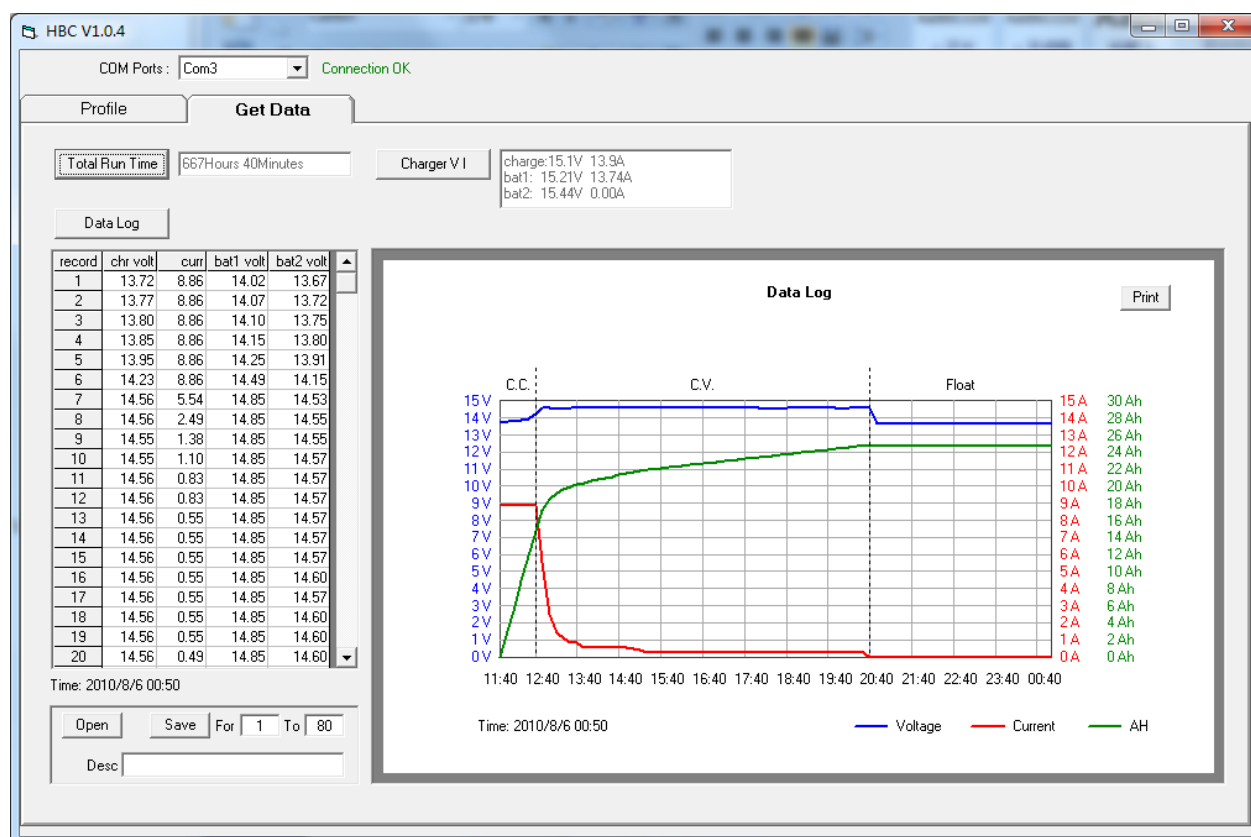
After pressing OK, all set value are stored in the charger, disconnect the USB, set the battery select switch at the Front panel to respective self defined 7 or 8 position to engage in user defined profile 1 or 2 accordingly.

3.8 Get Data



This “Get Data” program is a separate program that retrieves data stored in the IC of charger.

Once the charger is switched on, data of charging voltage, charging current, voltage at each of the battery terminals are recorded down at 10 minute interval. When the data bank is full new data will push the oldest out .Each set of data is marked with a number, new set of data has the highest number.



3.8.1 Get Data- Total Run Time

This drop window gives the accumulative run time of charger, as soon as the charger is switched on, the clock starts counting and even no battery is connected.



The total Run Time here is 77hours and 40 minutes from the first time charger has been switched on.

3.8.2. Get Data- Charger VI

This window shows the operation condition of the charger: in this example, charger is giving out a charging voltage of 15.1V, and current 13.9A
Voltage measured at the Bat1 terminal is 15.21V at 13.74A and 15.44V at 0.00A:

| | |
|------------|---|
| Charger VI | charge:15.1V 13.9A bat1: 15.21V 13.74A bat2: 15.44V 0.00A |
|------------|---|

Get Data- Data Log

You can browse through all the data from record 1 which is the oldest one to the most recent one.

Chr volt = charging voltage

Curr = charging current

bat 1 volt = voltage at battery terminal 1

bat 2 volt = voltage at battery terminal 2

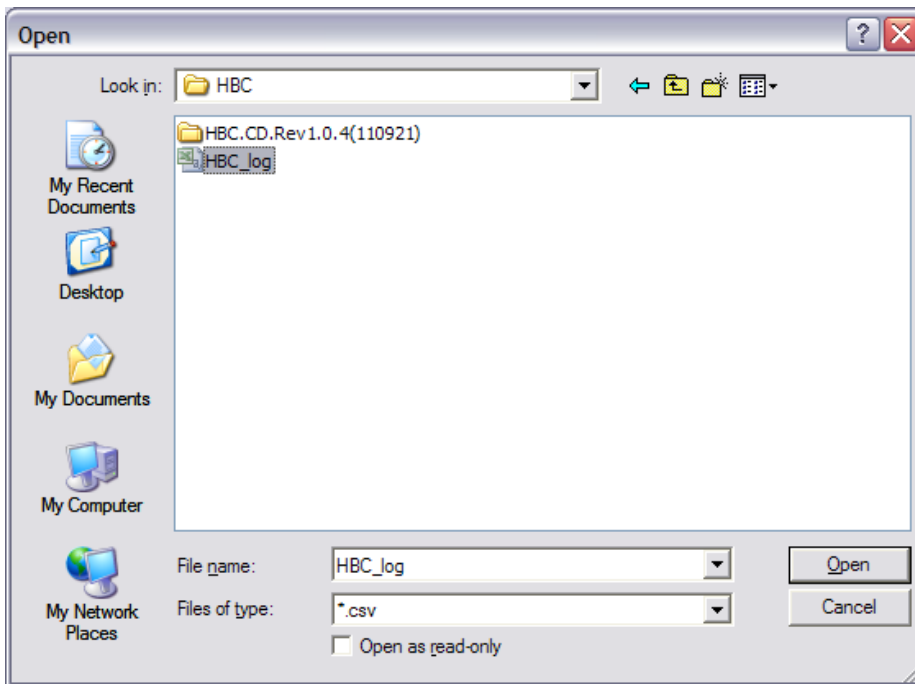
| Data Log | | | | | |
|----------|----------|------|-----------|-----------|---|
| record | chr volt | curr | bat1 volt | bat2 volt | ▲ |
| 1 | 13.72 | 8.86 | 14.02 | 13.67 | |
| 2 | 13.77 | 8.86 | 14.07 | 13.72 | |
| 3 | 13.80 | 8.86 | 14.10 | 13.75 | |
| 4 | 13.85 | 8.86 | 14.15 | 13.80 | |
| 5 | 13.95 | 8.86 | 14.25 | 13.91 | |
| 6 | 14.23 | 8.86 | 14.49 | 14.15 | |
| 7 | 14.56 | 5.54 | 14.85 | 14.53 | |
| 8 | 14.56 | 2.49 | 14.85 | 14.55 | |
| 9 | 14.55 | 1.38 | 14.85 | 14.55 | |
| 10 | 14.55 | 1.10 | 14.85 | 14.57 | |
| 11 | 14.56 | 0.83 | 14.85 | 14.57 | |
| 12 | 14.56 | 0.83 | 14.85 | 14.57 | |
| 13 | 14.56 | 0.55 | 14.85 | 14.57 | |
| 14 | 14.56 | 0.55 | 14.85 | 14.57 | |
| 15 | 14.56 | 0.55 | 14.85 | 14.57 | |

3.8.3. Get Data -Saving the data

You can save selectively the data you want for a desired period/ data lots.
Oldest data with the smallest record number, latest data with the highest number.
The file format is CSV.

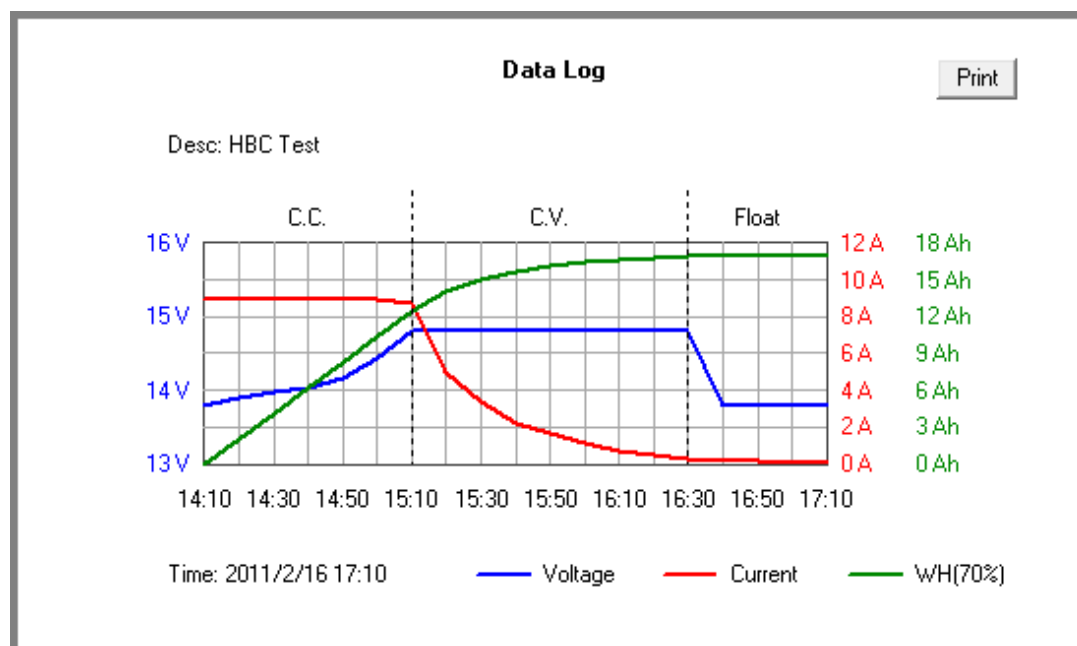
| | | | | | |
|---------------------------|------|-----|---|----|----|
| Open | Save | For | 1 | To | 80 |
| Desc <input type="text"/> | | | | | |

In this example we create a folder named HBC for storage of the data logged.



3.8.4. Get Data- Using the Data Log Graph

When you open the data log you saved by this software, the following graph will appear.



Voltage = Blue color

Current = red color

WH = Watt hour with 30% deducted adjustment for energy charged to battery.