



GO WIRELESS TODAY ! ! !



**Technical Document -
Establishing Wireless Communications
with Revolectrix Charge Control Software (CCS) Products**

Document Updated: March 27, 2015

Written by: Tim Marks, President, FMA, Inc.

Introduction

This technical document is provided to Revolectrix customers free-of-charge and offers insights into relatively new, off-the-shelf technologies (software applications) that, working in conjunction with a Wireless LAN (commonplace in homes these days), can provide cross-platform interoperability between computer systems of virtually all makes and models. For our purposes, we will show that it is now possible to operate a Windows PC remotely using virtually any SmartPhone or Tablet. Specifically, if you elect to do so, you will be able to monitor and control any FMA Direct Charge Control Software (CCS) running on a Windows PC using your SmartPhone or Tablet. Before you continue to work your

way through this document, you may first wish to read over the sections titled “Disclaimer and Precautions” and “Security” at the end of this document to help you decide whether the solution presented is right for you.

Background

Charge Control Software Description:

FMA Direct Charge Control Software Applications are written for Microsoft’s .NET Framework exclusively, and are termed .NET ClickOnce applications because they support automated, remote installation over the internet with one click of the mouse. Once installed using an internet connection, they automatically poll the internet each time they are launched to check for automatic updates. If a new version of CCS is available, the user is prompted to update the application in a subsequent program launch. The CCS Applications have advanced the art of Battery Maintenance to the point where even the novice can easily become proficient. Perhaps the best parts of all, they’re free and fun to use! One important feature of the CCS Applications is that they may carry with them new firmware updates for the products which can easily be installed by the customer from the Firmware tab of the application window. The available Charge Control Softwares support all products in the Cellpro Line of Chargers and Battery Workstations designed by FMA Direct in the U.S. and marketed worldwide under the Revolectrix brand, including, at the time of this writing; Cellpro 10s (discontinued), Cellpro 10XP, Cellpro Multi4, Cellpro PowerLab 6, PowerLab 8, and Dual PowerLab (8x2). Most customers who own one of the aforementioned products are likely familiar with the CCS Applications as 1000’s of customers use these applications on a daily basis to update, modify settings, charge, discharge, monitor, and/or cycle batteries of any chemistry while at the same time graph various operations in real time and save data files/graphs to their hard drive for purposes of cataloging the performance of their battery collection over time.

CCS Requirements:

- The CCS Applications run on Microsoft Windows Operating Systems (Windows XP or newer) exclusively. Admittedly, this has proven frustrating to certain MAC users. This document also represents a potential solution for MAC users. You’ll still need to hang on to your Windows box to run the CCS, but you can now control it with any MAC or any Apple device running iOS.
- In addition to installing the CCS application, the customer will require the Revolectrix FUIM3 PC USB Interface for 2-way data communication.

For more information about the available Charge Control Softwares, please visit www.revolectrix.com. In particular, at the bottom of the home page, look for a quick link button to the “PowerLab CCS Quick

Tour!” to get a good feel for the capabilities of these awesome, free applications. Charge Control applications are available for free download from the main Revolectrix website (<http://www.revolectrix.com>). Look for the “Downloads/Manuals” link at the bottom of any website page or navigate to the main Chargers page at <http://www.revolectrix.com/cat.chargers.htm>, click the Charger or Battery Workstation of interest, then click the Resources tab for that specific model. There you will find, among other resources, a link to the CCS Installation page for that particular model Charger/Battery Workstation.

Going Wireless

Overview:

For a time now, one of the most popular new feature requests made of our engineering team has been to design in wireless access to the Cellpro product line. While the implementation of technologies like integrated Bluetooth are feasible and under consideration, the purpose of this document is to pass along information to our customer base to educate them to the fact that some of these technologies already exist today as off-the-shelf software solutions and are easy to implement. Yes, anyone who has a wireless network, a PC running Windows, any version of our CCS Applications, and a Smart Phone or Tablet can easily set up wireless access and control the CCS Applications remotely.

The ability to do so was brought to my attention by a long-time friend and beta tester for FMA, Inc. The solution that he discovered involves a Remote Desktop Application called Splashtop. I have confirmed his findings. Splashtop works as advertised. This document will focus on how to install and set up Splashtop; an application made available for a nominal fee (when using Apple products), or in the case of other operating systems, free, for the purpose of controlling a Windows PC remotely using any Smart Phone or Tablet. Unlike in the past when cross-platform interoperability was only a dream, today it’s commonplace over a Wifi connection. Since I undertook this task, others have made me aware of alternative, similar solutions which accomplish the same end-goal, some even built into the existing operating systems of your PC and/or SmartPhone or Tablet, or available for free download. Since I learned a bit about these other solutions, I was torn about how to compose this document. In the end, I felt that, even though some of the “other solutions” to which I elude, such as Microsoft’s ‘Remote Desktop’ and Microsoft’s free “Remote Desktop Client for iOS” are already built in, or available as free downloads, I found setup was more complicated and harder to accomplish. In contrast, Splashtop installation is extremely straight-forward, easy to understand, and can be accomplished in a matter of minutes from a single web page. In my humble opinion, that makes the application worth a few dollars. As of the time I did my testing, Splashtop installation requires two components. One application installs on a SmartPhone or Tablet. The other part they term the “Streamer” goes on the Windows PC running the CCS. As of the date I performed my testing, the

Splashtop application (the part that goes on your phone or tablet), ranged from \$2.99 (iPhone version) to \$4.99 (iPad version) through the iTunes store which I consider reasonable. Others are free to disagree and/or to provide detailed steps for making other solutions work. I myself have limited time to devote to such tasks; particularly when I'm trying to put together a technical paper on the topic. So without further ado, let's see what's involved.

Why Wireless?:

You might be asking yourself, why do I need wireless? Good question. Maybe you don't. Take a moment and read over the following and decide for yourself; perhaps you've had similar longings. For my friend, who is a MAC lover, he was looking for a way to accomplish these objectives:

- 1) He has a single Windows PC he owns which is devoted exclusively to the task of running the CCS applications.
- 2) The PC sits in his basement.
- 3) Most of the time, he uses his Apple tablet for his daily computing needs.
- 4) His wish was to be able to monitor the CCS applications and view the graphs from his living room couch while he watches television.
- 5) He already had a wireless LAN and home network set up. What he needed was a way to view what was happening on his PC using his Apple Tablet.
- 6) To his surprise, when he ran across Splashtop and installed it, it accomplished this objective and more. For the first time ever, he was able not only to tunnel into his PC and monitor applications using his Apple Tablet, but also to control any aspect of the running applications, including accessing any feature of the CCS Applications.

If the above sounds cool to you, keep reading. In a few minutes you'll be enjoying the same capabilities for just a few dollars. Like I said, I am told there are other methods which are totally free, but I like this one because it's so easy.

Basic Requirements

- 1) Any Revolectrix Cellpro Line Charger or Battery Workstation.
- 2) An adequate power supply to power the above.
- 3) The Revolectrix FUIM3 PC USB Interface.
- 4) Any Windows PC (from Win XP through Win 8) with a working installation of Charge Control Software (CCS) for the Cellpro product you own that connects successfully to your Cellpro product via the FUIM3 and allows you to update firmware, make changes to presets, start/stop operations and graph data.
- 5) Any Apple iPhone, or Tablet, or any Android SmartPhone or Tablet.

Note: I have completed Splashtop installation and verified it operates using an iPhone 4, an iPad Air, and an Android Tablet. My PC is running Win 7. In my opinion, the phone's display is too small for much of anything having to do with CCS operation, but is perfectly adequate for monitoring operations and graphs while operations are underway. When I use Splashtop on a tablet, it's the bomb!

- 6) An operational wireless LAN setup which is connected to the internet.
- 7) The Windows PC as well as the SmartPhone or Tablet must all be connected to the same wireless LAN. You must be able to access the internet from either device.
- 8) If you will be installing on an iOS device, you will require a valid iTunes profile with a working payment method tied to the account.
- 9) If you will be installing on an Android device, you will require a valid Google Account with a working payment method tied to the account, even if you are not charged for the application.

Installing Splashtop

As I mentioned, there are two components that must be installed as follows:

- 1) The Splashtop Application that runs on your SmartPhone or Tablet – the one I determined was adequate for my needs is called Splashtop Personal. There are other versions like Splashtop Business, Splashtop Enterprise, and Splashtop Classroom. Feel free to read up on the various versions at <http://www.splashtop.com/>

Note: You can actually install the Splashtop application on practically any computer. It does not have to be a SmartPhone or a Tablet. But for the purposes of monitoring and controlling the CCS Application, these are likely the devices most suitable to our purposes. You may have other ambitions, needs, or wants. Perhaps you actually want to control your Windows PC with a MAC computer, for example.

- 2) The other required component they call the “Streamer” installs on your Windows PC running the CCS.
- 3) When you’re ready to install the application on your Phone or Tablet, use your device’s built-in browser to navigate to: <http://www.splashtop.com/downloads>
- 4) Under “Choose the app for your mobile device, PC or Mac”, pull-down and select the Splashtop product such as Splashtop Personal
- 5) Next choose the platform; e.g., iPad, iPhone, Android, etc.
- 6) Click “Go”. This should send you to the App Center associated with your particular device; e.g. iTunes Store, where you may need to select the application again, and enter your iTunes password to enable the download.
- 7) After the download is complete, installation is automatic.
- 8) After installation is complete, click OPEN.
- 9) On the next screen, enter Splashtop account information, then click Create Account. Hint: keep a record of the credentials you entered in a safe place in case you forget them.
- 10) Read and agree to the Terms and Conditions.
- 11) When it says “Your Splashtop Account has been created successfully. Welcome to Splashtop”, click Continue.
- 12) Login

- 13) Now go to the Windows PC you use to run the CCS Application(s) and use the browser on that machine to navigate to <http://www.splashtop.com/downloads> This time, under “Download the Streamer for your computer”, in the first field, pull-down and select the same Splashtop product version you installed on your SmartPhone/tablet such as Personal.
- 14) In the second field, pull-down and select Windows as the platform and click “Go”.
- 15) Read and Accept the Terms of Service.
- 16) Check and set up Splashtop Streamer by clicking the various tabs and adjusting it to meet your needs. I recommend you pay particular attention to the Security tab to enhance security above and beyond the defaults. See the section at the end of this Tech Doc titled “Security” for more information.
- 17) Leave the Splashtop streamer running on your Windows PC. Remember, you always have to have this application running whenever you wish to access the Windows PC using your SmartPhone/Tablet. I also recommend that you log out of Splashtop on the Windows PC when you are not using it.
- 18) Go back to your SmartPhone/Tablet. If Splashtop is not currently running, you will need to launch it and log in using the credentials you entered during setup.
- 19) You should now be able to see the Windows computer you added to your Splashtop account listed as an icon.
- 20) Click the icon.
- 21) When prompted for resolution, I found the option “Use computer’s native display setting” to work best. This is a great way to run the CCS at a higher resolution than one might normally if he had the CCS actually installed on the tablet. Running on the iPad Air or the Android Tablet, I was easily able to see the entire CCS Application Window, zoom in/out to see and adjust parameters.

Tip 1: Any time you find yourself needing a keyboard while using Splashtop; e.g., when you need to enter your Windows login password, look for the little Splashtop keypad icon which opens or closes a keypad on your SmartPhone or Tablet’s display. There are also “Tips” that come up each time you connect to the remote computer which you may wish to review.

Tip 2: If you elect to add another or different Windows Remote Computer to your Splashtop account, or you wish to use multiple devices to access your Windows PC, you don’t necessarily have to re-purchase Splashtop. You can add new computers to your Splashtop account, and you can access the Remote Windows Computers associated with your account from different wireless devices.

Disclaimer and Precautions

Please be advised, this document is intended to provide Revolectrix customers with one potential solution for adding wireless capability to the already-powerful FMA Direcct Charge Control Software (CCS) Applications. Revolectrix provides free of charge. The product presented in this document for making wireless communications possible is an off-the-shelf software called Splashtop. Splashtop is a registered trademark belonging to Splashtop, Inc. Neither Revolectrix nor any of its affiliates are in any way associated with Splashtop, Inc. We do not warrant Splashtop, nor do we guarantee or support its operation in any way shape or form. I implore you to read this entire document and decide for yourself whether you would benefit from the use of Splashtop; paying particular attention to the last section titled "Security". The installation and/or use of any product for Remote Desktop operations over Wifi is not without risk and can open up your computers and systems to intrusion. It is also important that you recognize that there may be other similar Remote Desktop solutions that offer increased security or that may be better supported when security vulnerabilities do arise in their softwares. Should you elect to move forward with the steps outlined in this Technical Document and you have any difficulties with installation or operation, please do not contact Revolectrix. Instead, direct any such inquiries to Splashtop, Inc.

Caution:

Please be advised, should you choose to set up and utilize a Wifi solution using the information provided in this document, you should ALWAYS be sure to follow normal precautions with regard to the handling and charging of any rechargeable battery, all of which represent a substantial risk of fire if mis-handled. Never charge batteries unattended. Never charge batteries on or near flammable surfaces such as carpet, draperies, etc. Also, be advised, information on many methods of containment such as fire bags and charge containers is available, and we recommend you research the matter and select or build what you may need to increase the safety of your charging station. MOST IMPORTANTLY, A Wifi solution is not a substitute for the institution of safe charging practices, nor should it be used as an excuse not to follow safe charging guidelines! This could result in fire, personal injury, or death!

Security

I am not an expert on internet security or hacking, but I have been cautioned to add some information to this Technical Document which I observed while I was installing this application, so I'm passing it along:

- 1) Be sure to take advantage of any security features available in your Wireless Router such as WPA. Consult your Wireless Router's user guide for more information.
- 2) If your Wireless Router is equipped with a Firewall solution, you may wish to turn it on. Again, consult your Wireless Router's user guide for more information.
- 3) Be sure you keep your Windows Operating System current by routinely installing the latest Windows Updates.
- 4) You may wish to enhance and harden your Windows login password. Longer passwords with a combination of upper/lower case letters and numbers as well as characters such as \$, @, #, %, etc, are best.
- 5) As mentioned earlier in this document, when installing the Splashtop Streamer Application on your Windows PC, pay particular attention to the Security tab to enhance security above and beyond the default settings. On this tab you can enhance the security of the Remote connection by requiring Windows login credentials, as well as setting up an additional password. If you do so, keep this password in a safe place. You will be asked to enter this code each time you attempt to use Splashtop to connect to your Windows PC.
- 6) The Splashtop Streamer must be running on the Windows PC in order to access it from another device, but I recommend logging out when no longer using Splashtop. Look for the "Logout" button on the Splashtop Streamer application window. Simply closing the application window does not close the open connection.
- 7) Make sure you have a working Anti-virus solution installed on your Windows PC and routinely update it.

Tip: If you are uncertain about the above, seek help from a friend with more experience in these matters.