SAMSUNG	Document Title	Product	Revision
	User Interface Manual	Programmable PSU	Ver. 0.0

Samsung Multi Programmer User Manual

LED Lighting development group
20.05.14

SAMSUNG

Table of Contents

1. Introduction

The Samsung Multi Programmer is a graphic user interface that enables users to control and change the operating parameters of a programmable LED driver. User can adjust the output current of the programmable LED driver through this programming tool named SPC200. Also, user can save and recall the profile.

1.1 PC Performance Requirement

The PC specification to operate Samsung Multi Programmer is as follows

- 1Ghz above Processor(32 bits), 512MB above RAM, 20MB above available hard-disk space
- Microsoft windows XP or 7, Microsoft NET Framework 4.0 environment or higher

1.2 HW Requirement

The HW configuration for the entire system is as follows

- A programmable LED driver
- SPC200(Samsung Programming Configurator)
- Mini USB(B type) cable to connect between PC and SPC200
- 3 pins plug-in cable to connect between SPC200 and 3 holes programming header
- 3 holes programming header to connect between 3 pins plug-in cable and a LED driver

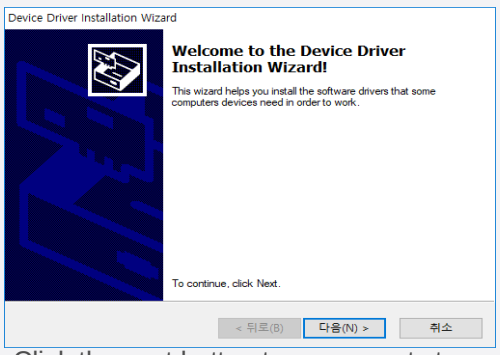
2. Instruction

This chapter describes installation for USB_MCom driver and Samsung Multi Programmer.

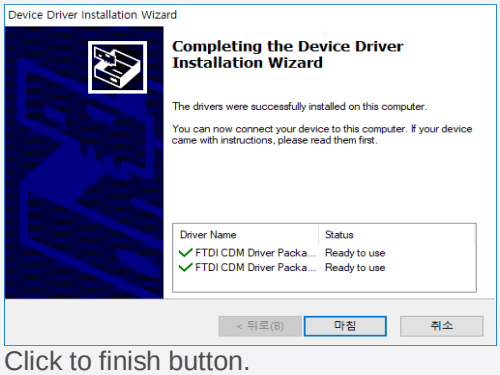
2.1 Install USB Driver

This chapter will give you guideline how to install software. Please access and download the USB_MCom driver installation file ➔ URL : https://cdn.samsung.com/led/file/data/USB_MCom.zip

Unzip USB_MCom.zip and then execute the USB_MCom.exe



Click the next button to move next step.



Click to finish button.

2.2 Install Samsung Multi Programmer

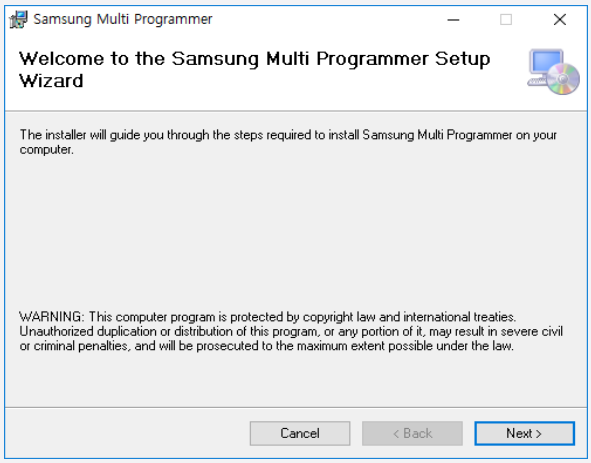
Download Samsung Multi Programmer Setup.zip and unzip it.

URL : http://cdn.samsung.com/led/file/data/Samsung_Multi_Programmer.zip

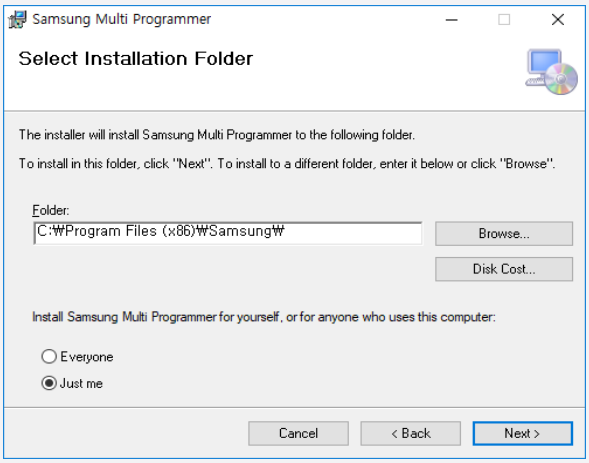
If there is no Microsoft.NET Framework 4.0 environment in your PC, then you need to install Framework 4.0 first. Please download installation file and install NET Framework 4.0.

URL : https://www.microsoft.com/en-US/download/details.aspx?id=17718

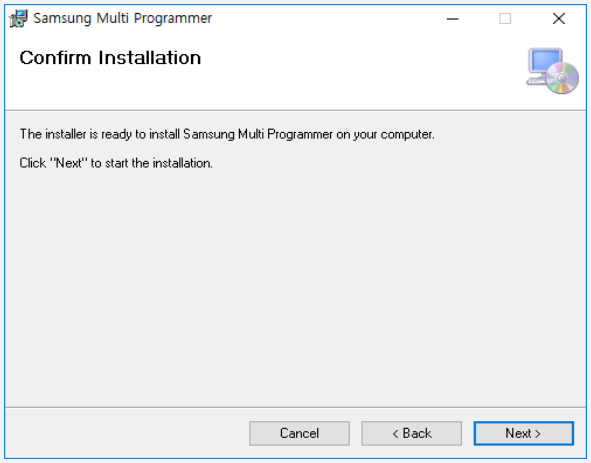
After install the NET Framework 4.0 and execute Samsung Multi Programmer Setup.msi



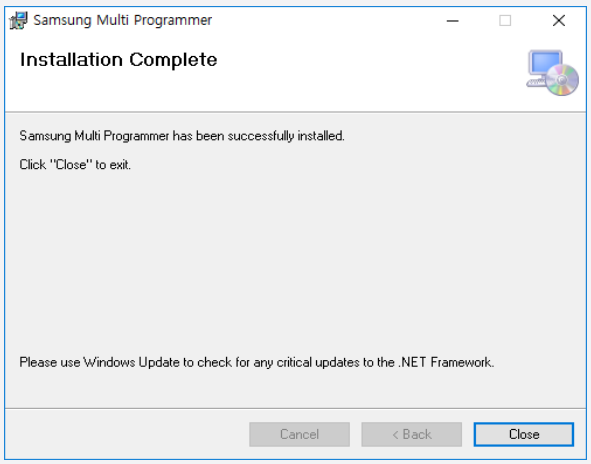
Click the next button.



Click the next button after selecting the folder path and checking either ‘Everyone’ or ‘Just me’.



Click the next button to start the installation.

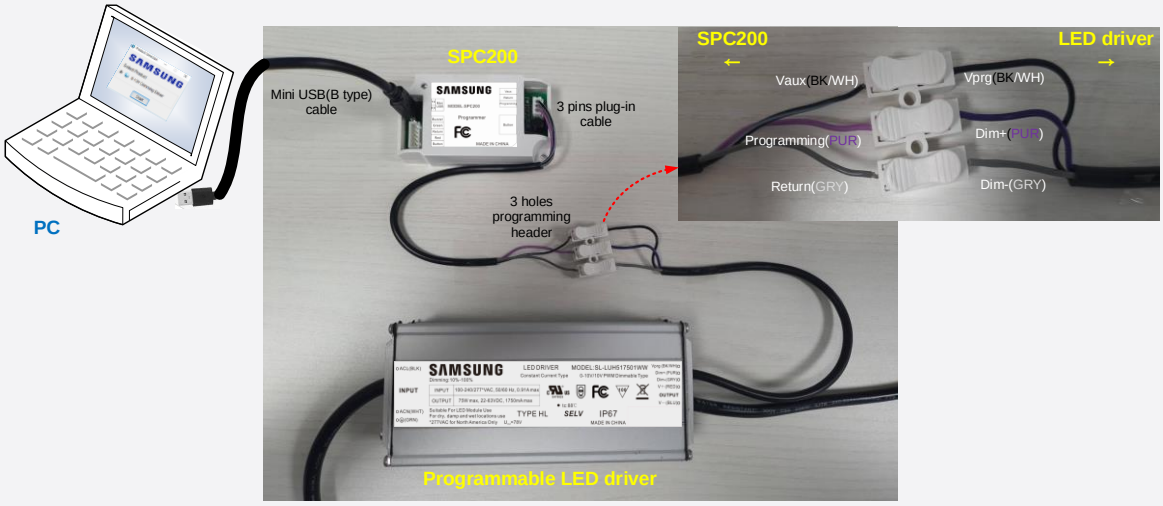


Click the close button to complete installation.

3. Connection

This chapter describes connection method for setting up a programmable LED driver.

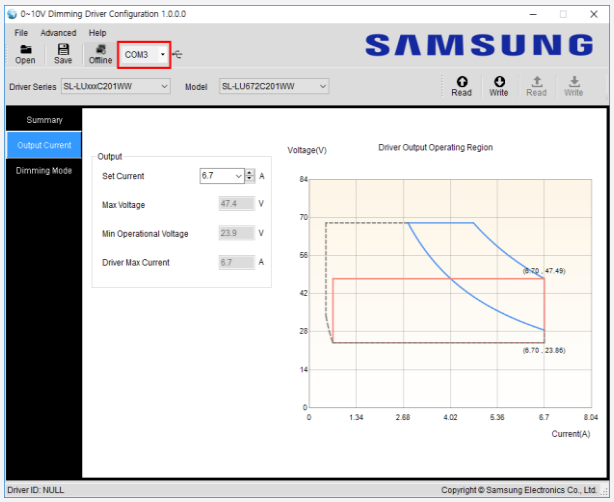
The connection diagram of the entire system is shown as follows.



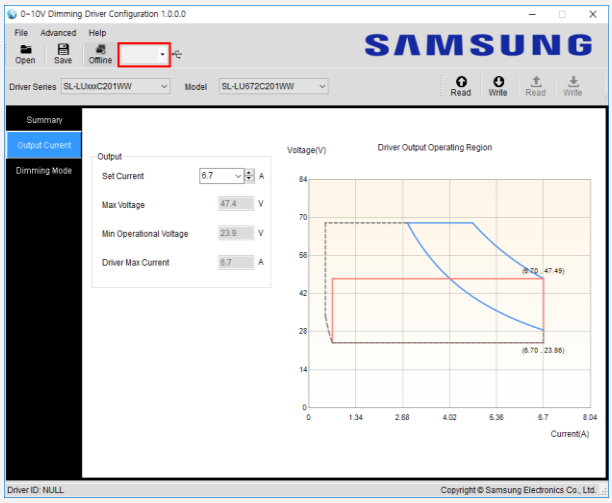
3.1 Connection Between SPC200 and PC

Run the Samsung Multi Progammer.exe and then click “Start” button.

If connection is right, the initial window shows corresponding COM port(COMx) on pull-down box under menubar as shown below. But If connection is not right, the COM port(COMx) doesn’t show anything.



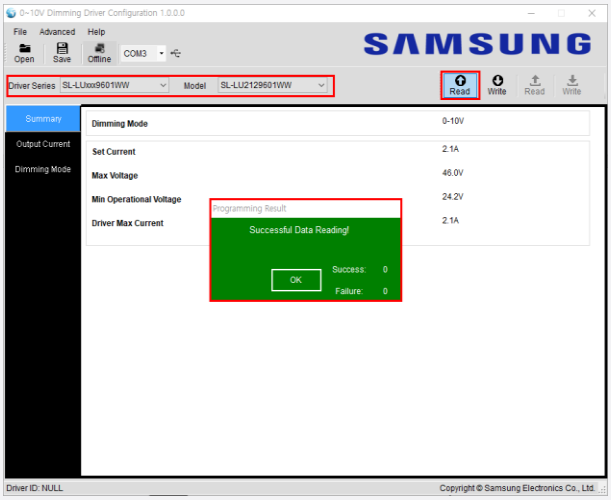
Normal connected state



Misconnected state

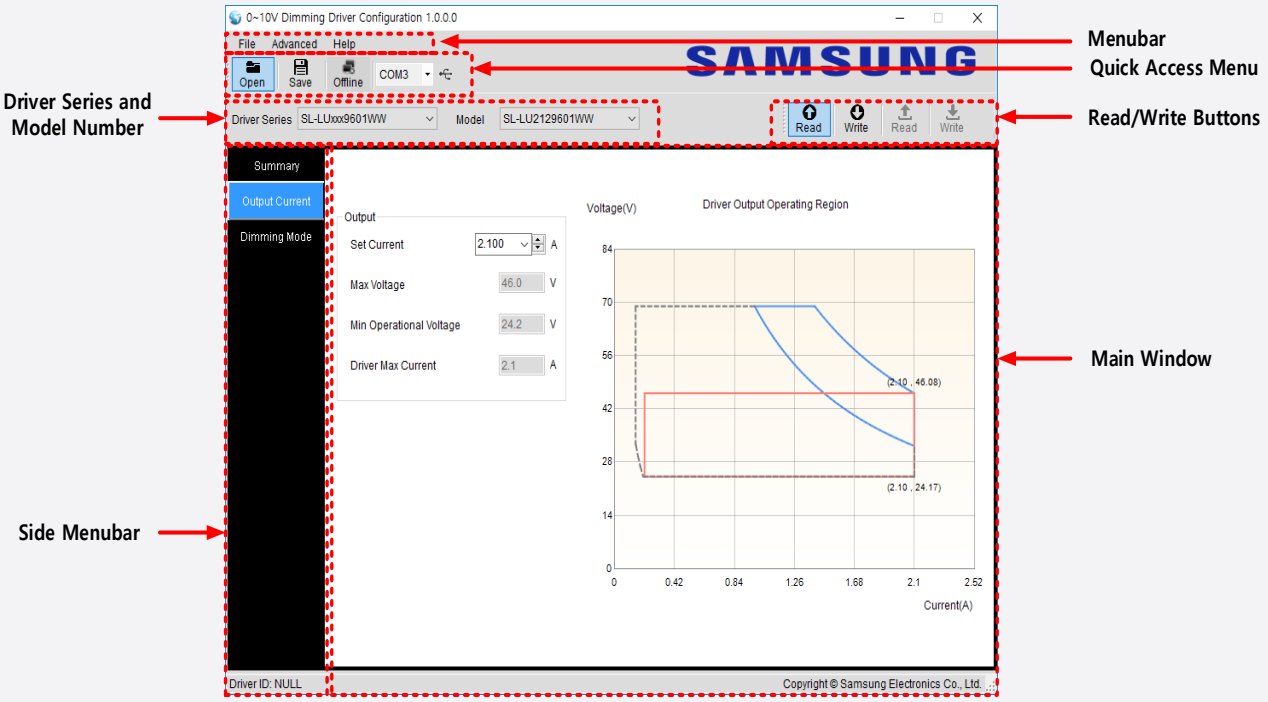
User can correct the status of connection by clicking the “Refresh the serial port”( ). If connection is right, you can see the corresponding serial port on the pull-down box. Also, software will verify offline function when refresh COM port.

Once the LED driver is connected to SPC200, click the “Read” button. If connection is right, a pop-up window will be appeared with ‘Successful Data Reading!’ message and you can see the corresponding driver series and model code of the connected LED driver. After click ‘OK’ button on the pop-up window, you can check the driver’s current setting parameters at “Summary” page.



4. 0-10V Dimming Driver Configuration Summary

This chapter describes the software summary. This software consists of menubar, quick access menu, read/write button, side menubar and main window as shown below.



5. Operation

This chapter describes how to set the programmable LED driver in detail to satisfy with user's requirements.

5.1 Menubar

Each items in menubar defined as below table.

Menu(Level 1)	Menu(Level 2)	Description
File	Open Configuration file	Open user setting *.ini file
	Save Configuration file	Save user setting *.ini file
	Exit	Exit from the software
Advanced	Reset	Use Reset function
Help	Help	Read User manual

5.1.1 File

User can modify parameters and save it as user configuration. It is also possible to recall the modified user configuration accordingly.

- Open Configuration file : It is a function that recalls the saved user configuration previously.
- Save Configuration file : This function saves modified profile as user configuration.
- Exit : Quit the software.

5.1.2 Advanced

User can use "Reset" function.

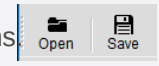
- Selecting "Reset" : While "Reset" function is activated, when programming finishes, output current will be changed to user's setting value immediately.
- Not Selecting "Reset" : While "Reset" function is inactivated, when programming finishes, output current will be changed to user's setting value after disconnecting LED driver from SPC200. If LED driver connects to AC power during programming, disconnect LED driver from AC power and SPC200 to finish programming.

5.1.3 Help

User can read the manual from Samsung website by clicking it.

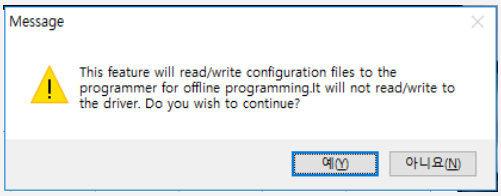
5.2 Quick Access Menu

5.2.1 Open/Save Buttons

User can open and save user configuration file quickly by clicking these buttons. 

5.2.2 Offline Mode

First, SPC200 needs to be connected to PC but LED driver doesn't need to be connected to SPC200. When user click the offline button, a pop-up window will be appeared with information message.



and the color of it turns green (

) If user click "Yes" button. In the offline mode, user configuration will be downloaded into the SPC200 by clicking "Write(

)" button. User can read the user configuration saved in SPC200 by clicking "Read(

)" button.

After LED driver is connected to SPC200, user can write the user configuration into the LED Driver by pushing black button on SPC200.

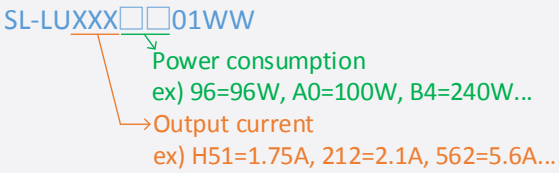
To use the offline mode, the SPC200 needs to be supplied 5 voltage to operate. 5 voltage can be supplied from battery, an external DC power source or PC.

5.2.3 COM Port Setting

When the connection between the SPC200 and PC is ready, the corresponding COM Port number (COMx) shows on the pull-down box. If not, it is blank on the pull-down box. In this case, you make sure the connection is right and click "Refresh the serial port" button() and then the corresponding COM port number will shows on the pull-down box.

5.3 Driver Series and Model Number

Basically the driver series and the model number consist of 14 digits as below. The 6th to 8th digits mean the output current and 9th to 10th digits are power consumption.

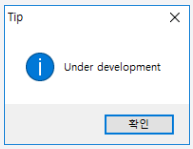


5.3.1 Driver Series Number

It consists of categories based on power consumption and has 6 categories(75W, 96W, 150W, 200W, 240W and 320W). So, User can choose a series of driver by referring to numbers from 9th to 10th digits.

5.3.2 Model Number

It consists of all derived model for each driver series. Currently some derived models are under development. So, a pop-up window with under development message will be appeared when User select under development model. So, User can choose a model number by referring to numbers from 6th to 8th digits.



5.4 Read/Write Buttons

A pair of left buttons are for the online mode and a pair of right buttons are for the offline mode.

	
Online mode	Offline mode

A activating state of pair of buttons will be changed according to select either online or offline mode.

For example, a pair of left buttons are activated and right buttons are inactivated in the online mode.

After the connection among LED driver, SPC200 and PC is ready in the online mode, user configuration get downloaded into LED driver by clicking “Write” button. User can read the user configuration downloaded in LED driver by clicking “Read” button.

After the connection between SPC200 and PC is ready in the offline mode, user configuration get downloaded into SPC200 by clicking “Write” button. Also, User can read the user configuration downloaded into SPC200 by clicking “Read” button.

5.5 Side Menubar

5.5.1 Summary

User can see user configuration summarized such as ‘Dimming Mode’, ‘Set Current’, ‘Max Voltage’, ‘Min Operational Voltage’ and ‘Driver Max Current’ in the main window.

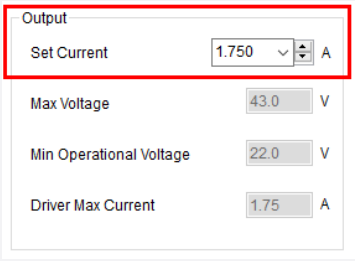
5.5.2 Output Current

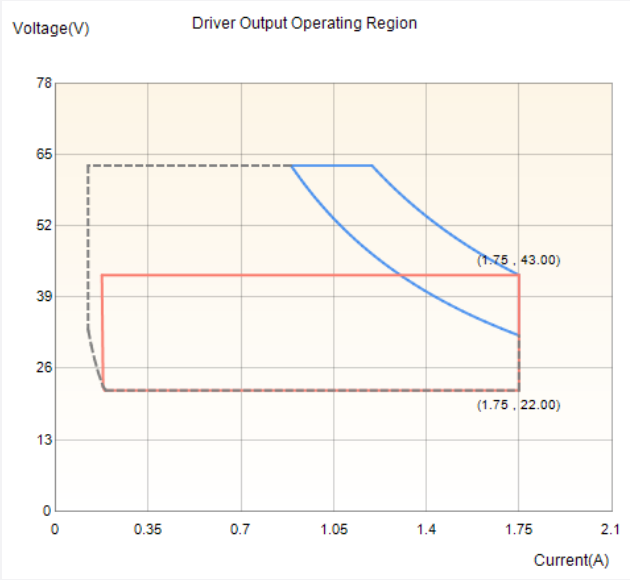
User can adjust output current at this menu with 2 ways.

1) Input the current value in the drop-down box.

2) Press up and down arrow.

The current setting step is 1% of maximum current value.





- Blue line : Defined as Good Performance Area.

If output current and output voltage are in this area, LED driver has good performance with THD<20%, PF>0.9 and high efficiency. Put cursor on the curve, you can see the output current and voltage at that point.

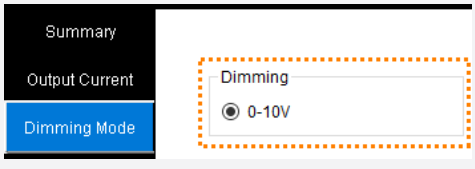
- Red line : Defined as Programmed Operating Area.

This curve changes along with the set current. It is actual operating area for LED driver with dimming. If dimming voltage is under 1V, the output current and voltage will be far left side in this area. On the contrary, if dimming voltage is over 9V, output current and voltage will be far right side.

- Grey line : Defined as Allowed Operating Area. It is available area to be programmed. The programmed operating area(red line) will be set within this area.

5.5.3 Dimming Mode

Currently Samsung driver models support 0-10V dimming only.



6. Error Code

This chapter describes error code of the LED driver and programmer.

6.1 Reading Driver

Error Code	Programming Result	Reason
R101	Response error(Programmer)	The programmer response error
R001	No Response(Programmer)	The programmer is not connected successfully
R201	Data is error	The connected driver is not constant power driver
R002	No Response(Driver)	The driver is not connected successfully
R102	Data is error	The driver response error
R202	The series does not find!	The PC software does not include the series of the driver
R203	The model does not find!	The current information is not written to the driver or the PC software does not include the model of the driver

6.2 Writing Driver

Error Code	Programming Result	Reason
W101	Response error(Programmer)	The programmer response error
W001	No Response(Programmer)	The programmer is not connected successfully
W201	Data is error	The connected driver is not constant power driver
W002	No Response(Driver)	The driver is not connected successfully
W102	Data is error	The driver response error
W202	Series validation error!	The series information written by the PC software is inconsistent with the driver
W203	Model validation error!	The model information written by the PC software is inconsistent with the driver

6.3 Reading Programmer

Error Code	Programming Result	Reason
S101	Response error(Programmer)	The programmer response error
S001	No Response(Programmer)	The programmer is not connected successfully
S201	Products matching failure!	The mode of programmer is 0-10V dimming driver
S102	Data is error	Read programmer EEPROM response error
S202	The series does not find!	The PC software does not include the series of the driver
S203	The model does not find!	The current information is not written to the driver or the PC software does not include the model of the driver

6.4 Writing Programmer

Error Code	Programming Result	Reason
X101	Response error(Programmer)	The programmer response error
X001	No Response(Programmer)	The programmer is not connected successfully
X201	Data is error!	Read programmer EEPROM response error