Universal Configurator Software

select|SYNC™

Rev 11-13-2017

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Introduction

Our Thomas Research Products/Hubbell Lighting Components graphic user interface (GUI) and corresponding hardware are designed to give customers a clear and simple way to adjust the various features on our SelectSYNC™ series programmable LED Drivers.

Our software is suited for use in environments such as luminaire design labs and luminaire production facilities. Allowing for the adjustment of basic features such as output constant current, dimming characteristics, and thermal protection, the *SelectSYNC* GUI and plug-and-play hardware provide users with an easy way to achieve LED Driver customization.

It all starts with the basic computer requirements, hardware requirements, and our current list compatible *SelectSYNC* models. From there we provide simple PC installation instructions, as well as the quick hardware set-up to enable anyone to easily begin programming their *SelectSYNC* LED Drivers. Next, we provide a breakdown of the various features including reading the already programmed parameter state of a *SelectSYNC* LED Driver, changing the programmed state parameters, profile manipulation, (creating, saving and loading previously saved) running batch programming for production, logging, updating, help functions, and more. Lastly, we provide a few examples of how to use the *SelectSYNC* system along with Troubleshooting, FAQs, Thermal Protection usage, and GUI Revisions information.

In conclusion, we hope this manual is clear and concise. If upon review you would like to make suggestions for improving it, please feel free to contact your local sales or customer service resource to be found at the following link:

http://trpssl.com/trp-sales.html

A. PC Requirements:
- 1.4 Gigahertz (GHz) or faster, 32-bit (x86) or 64-bit (x64) multi-core processor
- 4 gigabyte (GB) minimum RAM
- 20 gigabyte (GB) available Hard Disk space (32-bit)
- DirectX 9 graphics API with WDDM 1.0 or higher driver
- Keyboard + Mouse
- Display of 1024x768 or higher screen resolution
- First Time installation may require Administrator Rights to the PC installation is being attempted
- For use with Microsoft Windows 7 or 10

B. Hardware Requirements:
- Minimum Requirements PC
- *SelectSYNC* Universal Configurator Module (UCM)
- *SelectSYNC* Wired Programming Cradle (WPC)
- *SelectSYNC* NFC Wand Com Tool (NFCW)
- *SelectSYNC* DALI Flying Lead Module (FLM)
- Cable USB2.0 Type A-to-B (PC-to-UCM)
- Cable Serial DB-15 Male-Male (UCM-to-WPC)
- Cable USB2.0/3.0 Type A-to-MiniB (PC-to-NFCW)
- *SelectSYNC* LED Driver

C. Current *SelectSYNC* models List:
- S025W-056C1300-C01 *(or C02)*-UN-D2
- S027W-038C1000-R01-UN-DA1
- S040W-056C1500-C01 *(or C02)*-UN-D2
- S040W-056C1500-C02-UN-D2
- S040W-028C1400-L01-UN-D2
- S050W-052C1400-L03-UN-D2
- S075W-038C2000-L02-UN-D2

1) Program Installation

The software can be downloaded from a link sent to you by Thomas Research Products/Hubbell Components and set-up immediately on a PC. The software can also be made available for installation via removable USB key drive. ***Please note that user administration rights may be required in order to execute the installation on a PC.***

A) If connected to the internet, **click on the link** that was emailed to you; or run the SelectSYNC™ application from your key drive.

     1) An Administrator window will appear to ask for permission to run. Click the "Yes" button.

     2) The License agreement window will appear. You must accept the agreement to proceed and select "Next."

     3) An information window acknowledges you are ready to install the *SelectSYNC* software. Click the "Next" button to proceed.

     4) An Additional Task request offers you a checkbox to create a *SelectSYNC* icon on your PC desktop. Click the "Next" button to proceed.

     5) A "Ready to Install" window will appear next. Click the "Install" button.

     6) The next window displays the installation progress. When complete, an information window will appear. Click the "Next" button to proceed.

B) An acknowledgement message will appear when the program installs successfully. Click the "Finish" button to complete installation. Click the checkbox if you want to launch the *SelectSYNC* software as soon as the installation is finished.

C) The installation wizard creates access to run *SelectSYNC* software in the "All Programs" selection under Windows "Start" Icon. If you chose to add an icon to your PC desktop, you will see it now. It appears here:

Your software is now ready to run.

2) SelectSYNC™ Hardware Description and Detail

A) The Universal Configurator Module (UCM)
The UCM has 5 connection ports:
• USB2.0 Type A ALT COM port
• DB-15 Serial WPC/DALI com port
• DB-9 Serial Rset-A com port
• USB2.0 Type A USB/ALT/com 2 port
• USB2.0 Type B PC com port

ALT COM2   PC   ALT COM   WPC/DALI   RSET-A

Front   **Back**
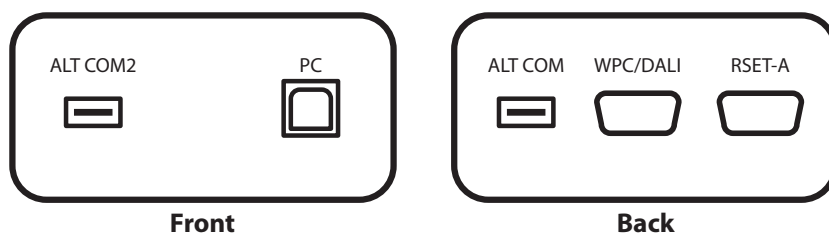
B) Wired Programming Cradle (WPC)
The WPC has one wired set-up connection port for use by the Serial DB-15 Male-Male (UCM-to-WPC).

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C) NFC Wand com tool (NFCW)

The NFCW has one wired set-up connection Type MiniB port for use by the Cable USB2.0/3.0 Type A-to-MiniB (PC-to-NFCW). **Note**: The NFC Wand com must be connected to a USB port on a PC..

D) Flying Lead Module com tool (FLM)

The upcoming FLM has four connection posts for wired connection to the flying leads of our DALI programmable driver. It also has a wired set-up connection to the UCM.

E) Cable USB2.0 Type A-to-B for PC-to-UCM connection.

The USB2.0 Type A-to-B (PC–to-UCM) cable is supplied with the UCM. It interconnects a USB2.0 Type A port of a PC to the Type B port on the Universal Configurator Module, (UCM).

F) Cable Serial DB-15 Male-Male for UCM-to-WPC or UCM-to-FLM connection.

The standard Serial DB-15 (UCM-to-WPC) cable is supplied with the WPC or DPM. It interconnects the UCM's WPC output port to the Driver Receptacle Module, (WPC) input port or the Dali Flying Lead Module (FLM) input port.

G) Cable USB2.0/3.0 Type A-to-MiniB for PC-to-NFCW connection.

The cable USB2.0/3.0 Type A-to-MiniB (PC-to-NFCW) is supplied with the NFCW. It connects the USB2.0/3.0 Type A, PC output port to the NFC Wand's USB2.0/3.0 MiniB NFCW input port. The Cable must be used directly connected to a PC USB port or powered USB hub.

3) Hardware Set-Up

A) Interconnecting Hardware

The hardware set-up may vary with the specific Driver model you are programming. Typically, an **installing Drivers** message will occur. Click on it to see the different drivers and when their downloading is complete. **Important Note:** When connecting the hardware to a PC, be sure to wait for all drivers to load. A Windows system notice may pop up and indicate completion status.

Wired programmable Drivers require the Universal Configurator Module (UCM) with standard USB2.0 Type A-B cable for PC-UCM connection to a PC and the Wired Programming Cradle (WPC) and Serial DB-15 Male-Male cable for UCM-to-WPC connection to the UCM.

NFC programmable models require the NFC Wand (NFCW) with the USB2.0/3.0 MiniB cable connected directly to the PC.

B) Engaging NFC Wand Driver Com:

1) Use the cable USB2.0/3.0 Type A-to-MiniB (PC-to-NFCW) to connect the NFCW to the PC.
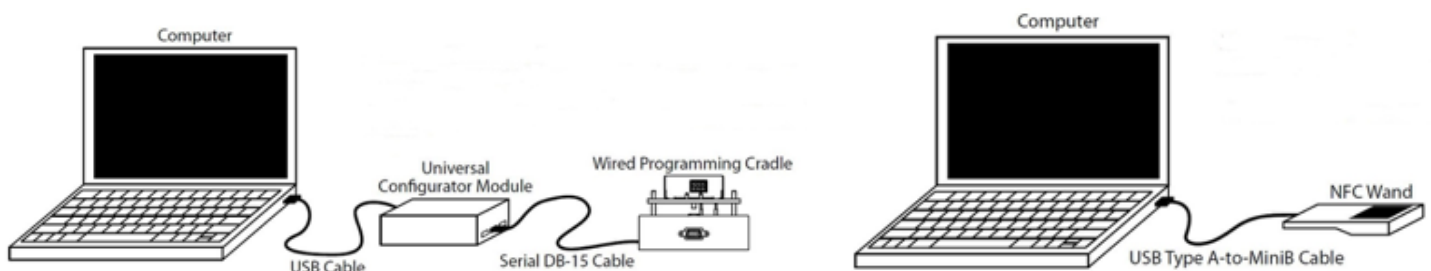
2) The NFCW will turn on. Green and Orange LEDs should flash 5 times.

3) After 5 flashes of both LEDs, the Orange LED will stop flashing and turn off; the Green LED will remain flashing. Once the SelectSYNC software is loaded and a compatible NFC programmable driver model is selected the Green LED will stop flashing, remaining at a constant on, signaling the NFCW is ready.
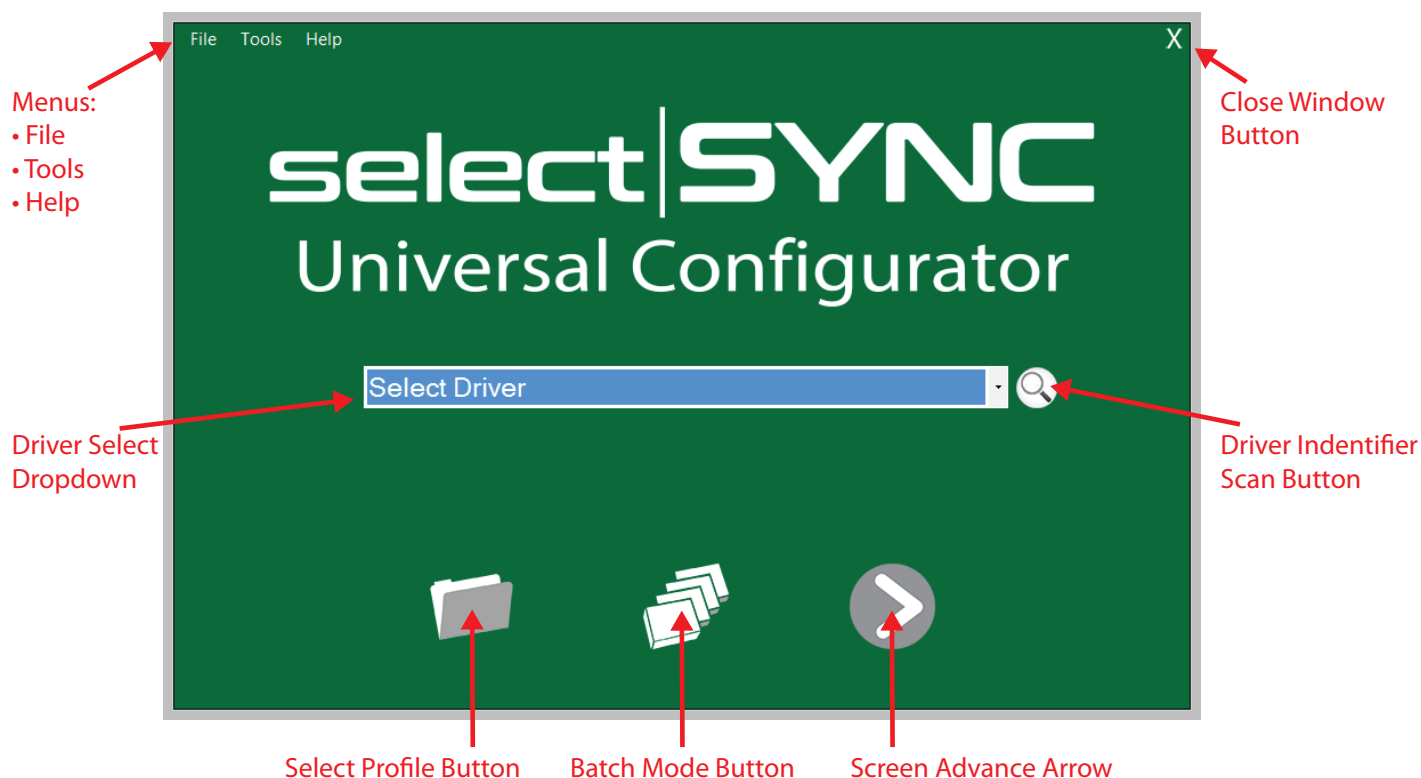
4) Hold the output side antenna corner (identified on the label) of the NFC Driver to be programmed over the NFCW face. When it detects the driver the Orange LED will begin to flash.

Programming the driver or querying the current programmed state of the driver can now commence. Or, optionally the Program or Magnifier Glass buttons can be used before the driver is placed for communications at the NFCW face.

HOME SCREEN

Menus:
• File
• Tools
• Help

Close Window Button

Driver Select Dropdown

Driver Indentifier Scan Button

Select Profile Button   Batch Mode Button   Screen Advance Arrow

C) Engaging Wired Programming Cradle Driver Com:

1) Use the Serial DB-15 (UCM-to-WPC) to connect the UCM to the WPC.

2) Upon first connection of WPC and UCM to PC, two Yellow LEDs on either side of the push-down panel will turn on. When the cradle is detected and ready for use, only the red LEDs will be on.

3) Set the driver on the push-down panel in the appropriate orientation.

4) Push on the center of the driver to depress the Driver and the push panel. Both Red LEDs will turn off and Yellow LEDs will turn on once the driver is detected. This may take about 2 seconds.

Programming the driver or querying the current programmed state of the driver can now commence. Optionally, the Program or Magnifier Glass buttons can be used before any driver is depressed on the push-down panel.

D) Engaging DALI Programming Module:

Not available at this time.

4) Interface Preview: Querying a Wired Driver

A) Software Loading Screen
The blue loading or splash screen appears for several seconds after running the SelectSYNC™ program from the Windows desktop icon or other.

B) Home Screen
The green Home screen, or Selection Menu screen, should appear immediately after the splash screen disappears.

C) Identifying/Selecting a Driver
The most important features of the Home screen are the **Select Driver** dropdown and **Driver Indentifier Scan** button (it shows a magnifier). A driver model must be identified or selected to be able to use the main programming features of the GUI. Identifying a driver is as simple as selecting the magnifier and engaging a driver, or vice versa. Using the Select Driver dropdown is detailed below.

Using the mouse or touchpad on the PC, one can maneuver the cursor over and click on the dropdown arrow to the right of the Select Driver item line. It will reveal all available models preloaded into the GUI.

Select the appropriate model from the dropdown list. The selected model will appear in the Select Driver item line. For example, Model S025W-056C1300-C01-UN-D2 was selected in the picture at right. Since this example driver is only programmable by wire, a set-up including the UCM and WPC are required.
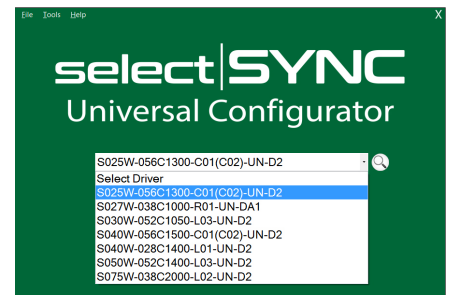
Click the large Screen Advance Arrow button in the lower right corner. If you click before you select a Driver, an error message will appear below the dropdown that reads "Driver is required."

Once a Driver is chosen, clicking the Next Arrow button will advance you to the Main Programming screen for the LED Driver Selected.

D) Querying LED Driver Settings
The Main Programming screen is the core of the GUI intereface, and has many elements to it. To query the current LED Driver settings, select the Summary tab at the lower left of the window screen.

There is a Magnifying Glass button over the "Existing setting" column of the table list. Next to it is the "New setting" column. The "New setting" column of table values will show the default values for the selected Driver if this is the first driver being selected since loading the software or no profile has been selected.

The "Existing setting" table values associated with any engaged driver chosen will not display until the

Magnifier has been selected.

Engage the Driver then click the Magnifier glass *(per Section 4.C)*. The WPC should run a process and populate the "Existing setting" column. Note that the magnifier can be clicked before the Driver is engaged. The indicator next to the Selected Driver line will change from Red "Ready" to Yellow "Ready" and the Serial number of the Driver being queried will display in the window. Upon release of the Driver from engagement with the WPC, the Yellow "Ready" indicator will change to Red "Ready" and the Serial number will read "N/A".

MAIN PROGRAMMING SCREEN
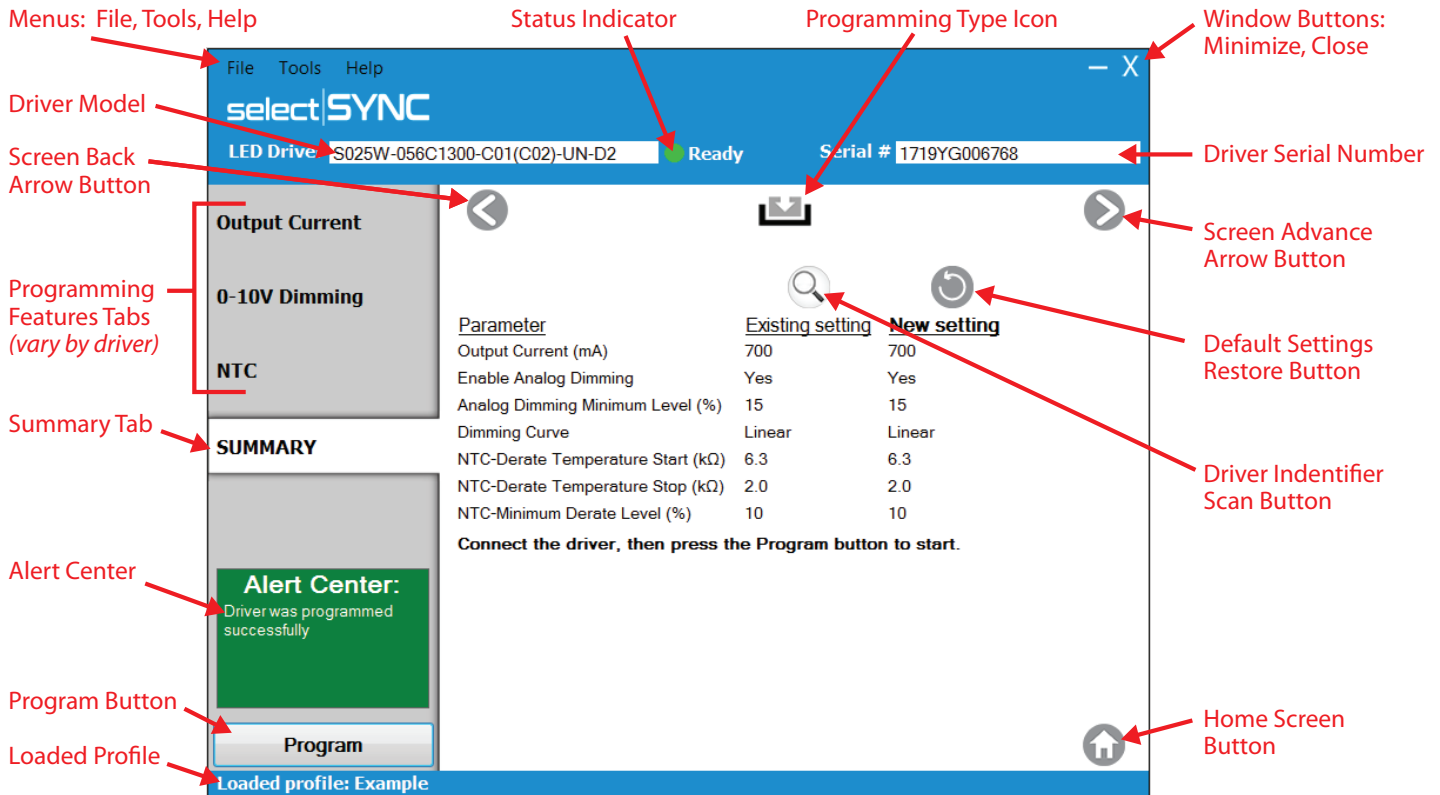
For example, a S025W-056C1300-C01-UN-D2 Driver has been successfully queried for its parameters. The "Existing setting" is the same as the "New setting" since the driver queried was already programmed to the new settings.

E) Restoring Driver Settings to Factory Defaults
Click the Restore button above the "New Setting" column to restore all settings to factory defaults in the software when no profile is loaded. If a setting is changed and a profile is loaded, the restore button will reset all parameters to the profile settings. A warning will ask you to confirm the change made, click yes to proceed. The next step is to program the driver with factory default settings. Follow the steps in section 5.B.9 to program the driver manually or with a batch mode.

5) Using the GUI

A) The Home Screen
The Home screen features the File, Tools, and Help dropdown menus at the top left corner of the window.

These will be discussed later. Refer to the Home Screen callouts shown on page 6.

1) Driver Model Select Line
   The dropdown allows you to select the LED Driver Model to be programmed. It assures that the driver model to be programmed matches the driver selected.

2) Driver Identifier Scan Button
   The Driver Identifier Scan button is the Magnifier Glass button immediately to the right of the Driver Model Select line. It can be used instead of the manual selection required by the Driver Model Select dropdown. Instead of a user reading the label of the driver he's going to program and selecting it from the Driver Model Select dropdown, the user can simply select the magnifier and engage the proper driver type with its appropriate hardware.
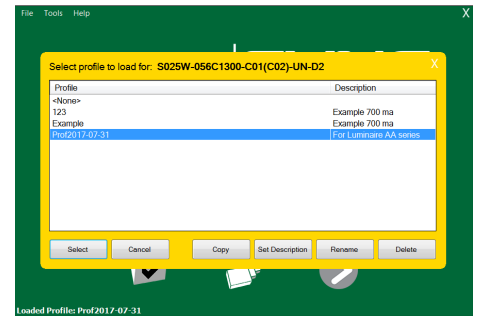
3) The Driver Profile File Select Button
   The Driver Profile File Select Button provides you access to custom settings for particular drivers that have been saved as Profiles for reuse. Using it without selecting a particular driver will prompt a "Driver is required" error message on the Home screen.

   If no profiles have been stored previously, the window will highlight the "<None>" option. Any available profiles will appear as a list of line items.

   The Driver **Profile Select window** itself has 6 buttons at the bottom of the window. the note at the top of the window identifies the driver model that's been selected.

   Highlight the desired profile from the list, and click the Select button. The Driver Select Profile window will disappear and a Checkmark will appear in the Driver Profile File Select button. The name of the
   loaded Profile will apear at the bottom left of the Home screen.

The **Cancel button** simply closes the Driver Profile Select window.

The **Copy button** allows you to copy a previously saved profile. It will automatically rename that profile inserting the word "Copy" in front of the original file name. Selecting the Copy button will bring up an entry line with the new name already typed in, as well as both Check and X buttons at the right of the name line. Here you can change and select either the default name or the new name by selecting the Check button. It will then be added to the profile list. Selecting the X-delete button in the top right corner will cancel the original Copy command.

The **Rename button** allows you to rename an existing profile. Similar to the Copy command, selecting the Rename button will display the current name of the profile in a new line with the Check and X buttons. If you don't change the name in the new line, the Check and X buttons will simply close the Rename function.

The **Set Description** button allows you to enter a job code (work order #) that will print on the label. Data can be entered in the line that opens as required. Again, the Check and X buttons perform similar functions as with the other buttons of this Driver Profile File Select feature.

The **Delete** button allows one to delete existing profiles. If a profile is highlighted in the profile list and the Delete button is selected, a confirmation window will ask to confirm the action with Yes or Cancel buttons. Clicking Yes removes confirmation window as well as the highlighted profile from the list. Selecting Cancel removes the confirm message window only. *Note that you cannot delete a Profile which is currently loaded. It results in an error message.*

After loading a profile, you can select the Batch Programming Button.

4) Batch Mode Programming Button

Clicking the Batch Mode Programming Button initiates the Main Programming screen Batch tab.

This is your access to production batch program settings, for production level programming of known quantities of Drivers. Using it without selecting a particular driver will give a "Driver is required" and "Profile is required" error messages on the Main Menu Screen. *If a driver is selected, but no profile is loaded a "Profile is required" error message will be displayed under the Driver Profile File Select Button on the LED Driver Main Menu Screen.*

To program drivers using batch mode, engage a driver in the WPC (cradle) or with the NFCW (NFC wand) that matches the driver model shown at the top of the main programming screen. When the driver is detected, LED status indicators will turn yellow. The status indicators will turn green when a driver is succesfully programmed.

Most of the other features of this window will be discussed in the Next/Advance Arrow Select button section. The Batch tab connects to a larger section of the main window. The profile name being programmed is displayed and you can enter the number of drivers to be batch programmed. The window provides instructions on the batch programming steps required. The loaded profile name is repeated at the bottom of the window. The "You have programmed" Line display the number completed out of the total set to be programmed. This updates with each new driver programmed in the batch.

Once all the drivers in a particular batch are programmed and the two numbers in the "You have programmed" line match, you receive a "You have completed the batch" line along with a Thumbs-Up button. Select the thumbs-up button to return to the Home screen.

Exiting Batch Programming. If you wish to exit the Batch Programming window, the X-delete button in the top right corner of the window will initiate an exit confirmation request window with Yes and Cancel buttons. Click Yes to close the software completely, requiring rerunning. Clicking Cancel will simply send you back to the Batch Programming window.

Printing Labels. The label printing option allows you to create a label based on the Driver profile and the Job code. You can specify the length of the label (default is 2.5 X 0.75in.) as well as the printer.
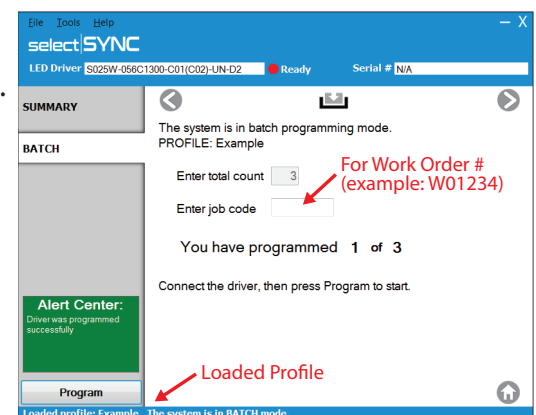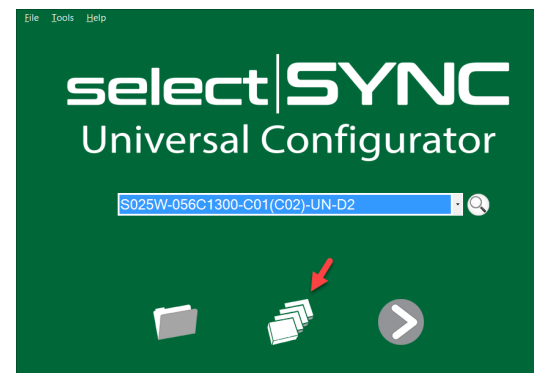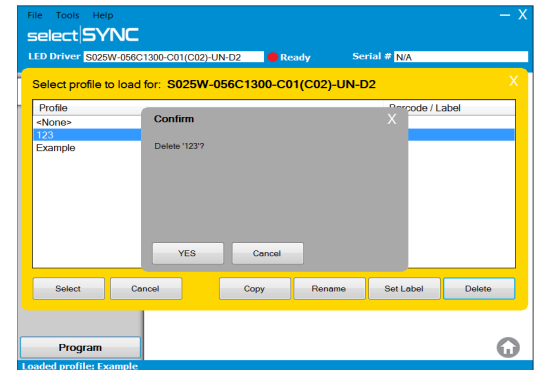
**NOTE:** Printing only works when a profile is active.

The label contains 4 fields:
- Profile name (file name)
- Job code (manually entered mfg. reference # or work order #)
- Output current
- Date-code
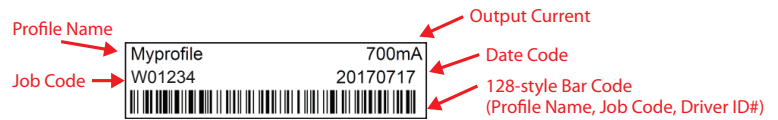
Information is printed in a 128 style barcode format: profile name, job code and driver ID # (see below for ID#s) are the 3 parameters encoded. The maximum characters that can be placed in the barcode depends in the size of the label. The default size allows for 24 characters.

There are two different ways to print a label: manually print a single label, or Automatically allow the software to print a label each time a driver is programmed. This feature only works under Batch Process.

Changes to print label settings can be made in the settings folder. We recommend placing the label on the side of the driver near the output end such that the text of the main and programming labels are readable from the same view point. See examples at right.
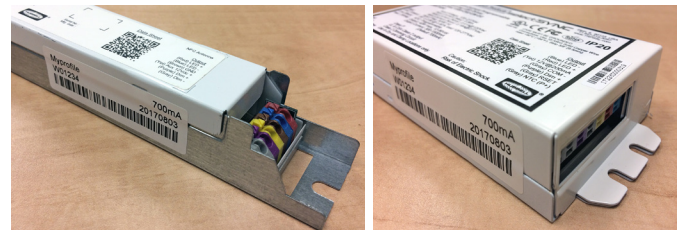
Setting up software for Auto-Batch print settings

Settings screen, select **General Print** to allow printing in manual or batch auto printing function. Deselect to turn off all printing capability.

SETTINGS SCREEN

Driver Dection Settings (Fixed)

Set Pin #

Set Default Quantity

Pick Log File Location

Set Security Access Level

Select to allow printing

Select to print after each driver programmed

Select Printer Dropdown

Save Settings

Cancel Changes

Set Label Size
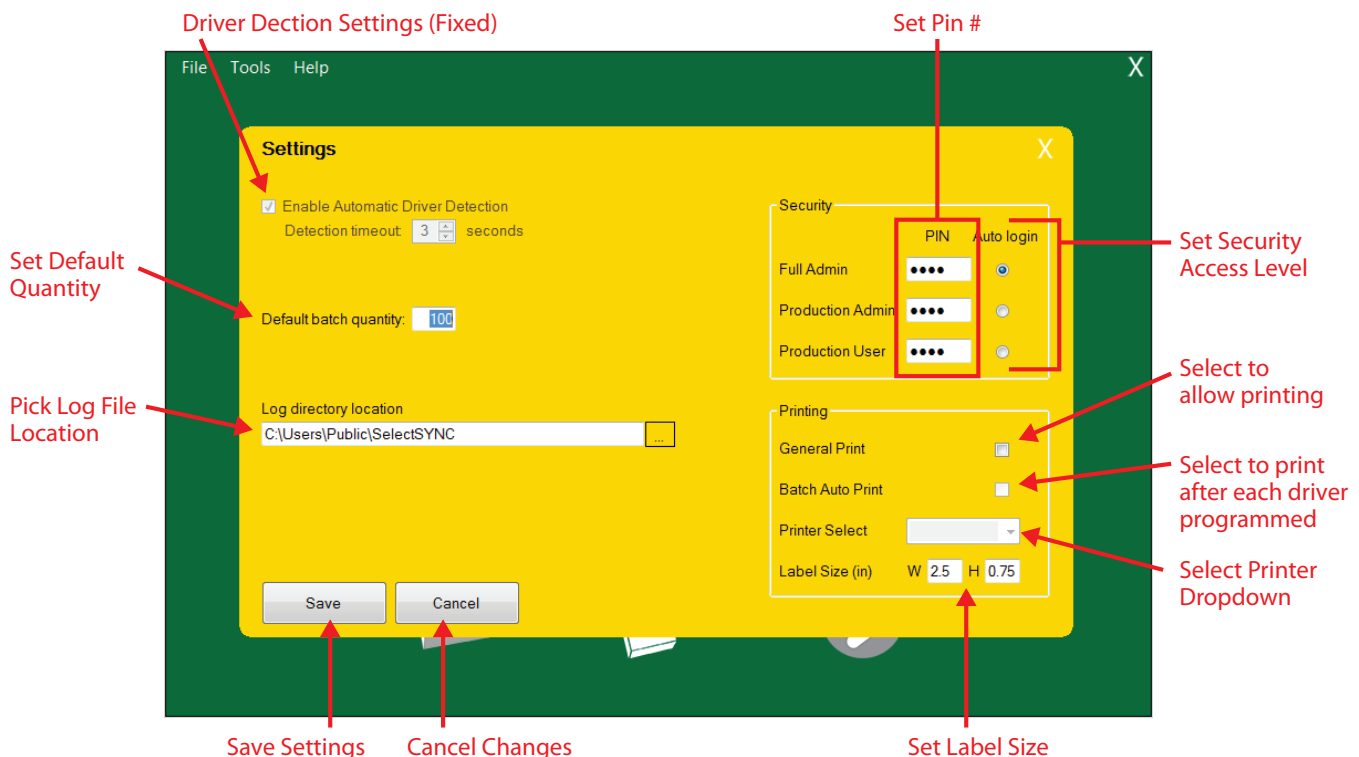
Select **Batch Auto Print** to automatically print a single label after each driver is programmed when using batch programming. Deselect to turn off auto printing function.

Select printer using **Select Printer** drop-down list to send label data to for auto-printing. A PDF file may be selected to save the label as an option. Printers must be able to be set up for use with Windows operating systems to be usable by the SelectSync software. Windows printers must be set up on the same computer with the SelectSync software installed. Label size can be changed to sizes other than the default size. Experimentation will be required when using different label sizes or varying data field lengths to check if printed output is acceptable.

Driver Model #	ID #
S025W-056C1300-C01(C02)-UN-D2	1
S027W-038C1000-R01-UN-DA1	3
S030W-052C1050-L03-UN-D2	4
S040W-056C1500-C01(C02)-UN-D2	5
S040W-028C1400-L01-UN-D2	7
S050W-052C1400-L03-UN-D2	8
S075W-038C2000-L02-UN-D2	9

• See Online for updates and additions to this list

• Driver ID # is used for reference in label printing and programming functions

Setting up software for manual printing
In **Settings** screen, select **General Print** to allow printing in manual or batch auto printing function. Deselect to turn off all printing capability. For manual printing of labels, a driver and profile must be selected. Then advance to the main programming screen.

Select **Print Label** from the **File** menu. Select printer options as needed and click OK to execute label printing.

5) The Screen Advance Arrow Button
    The Screen Advance Arrow button takes you to the Main Programming screen. You must choose a driver first. If no driver is chosen, the "Driver is required" error message will appear. After choosing a driver, or choosing a driver and selecting a profile *(you will see a checkmark in the Profile Select folder, as well as the profile name at the bottom of the window)*, you can advance to the Main Programming screen. The first available tab is automatically opened. The only visible difference in windows will be that if a profile has been loaded on the Home screen, its name will appear in the Main Programming screen at the bottom left.

B) Main Programming screen
The Main Programming screen is a full-featured user window. It includes Top Main Menu Line options with three dropdown Menus ("Files," "Tools," and "Help"), a Minimize Window button, and the X-close button. There is a LED Driver Line populated with the Driver chosen in the Home screen, along with Red round Indicator with "Ready" message and a Serial number Line. There are also sveral Tabs to the left of the screen for the driver adjustments available for the chosen driver model. Next *(right)* and back *(left)* Arrows are visible. The symbol between designates the programming connection (NFC or Wired). A "Program" button and a "Home" button are available. The message line at the bottom of the window indicates the name of the loaded profile (if chosen). Note that some Drivers have more adjustable features than others; therefore, different drivers may have different sets of tabs and Main Window content. If an adjustment is not available for a Selected Driver, the associated tabs will not display on the Main Programming screen. Refer to the Main Programming screen callout diagram on page 7.

1) The LED Driver line displays the driver initially chosen in the Main Menu window.

2) Red "Ready" Indicator
    The Red Indicator "Ready" Message changes both color and message during programming. When a driver is engaged, the Red "Ready" indicator turns to Yellow "Ready".

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3) The Serial # line is associated with a driver being queried for programmed status and/or being programmed. It's automatically populated with the data of the driver being engaged.

4) The **Output Current tab** extends into the main open area of the window when the Main Programming screen loads.

The "Current" line is displayed. You can change the current in mA via an Entry box.

It displays the valid range allowed for the LED Driver chosen. If the current line is changed with an incorrect character or one outside the given range, an "Alert center" message will immediately appear in red above the Program button in the lower right of the window. There are two possible errors:
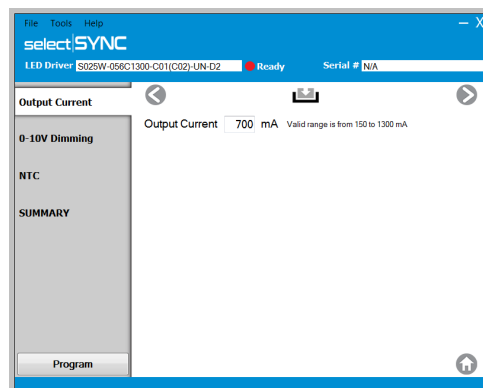
An out-of-range condition--a legitimate number is entered, but is outside the specified range.

Invalid entry-- something other than whole number or non-numeric character is entered.

Next *(left facing)* and back *(right facing)* arrows appear in the top left and top right of the open window area. The Left arrow is essentailly a back button. It will take the user back to the Main Menu window from the top tab. Note that if the user is in a tab lower on the list, it will take the user up the list of tabs. The Right arrow will advance the user to the next tab (the 0-10V Dimming tab in this case).

5) Clicking the **0-10V Dimming tab** changes the main display area of the screen to show several dimming-related parameters which you can adjust.

The **Enable Checkbox** is checked by default with the default parameters shown. To disable all dimming, uncheck the box.

The **Analog Dimming Low Level** slider appears below the Disable Analog Dimming Checkbox. This allows you to change the minimum dim point in the 0-10V analog dimming range. As you change the slider, the graph at the bottom of the window changes in response, as well as the numeric percentage level in the box to the right of the slider. This allows you to see the direct effect of adjusting the slider to the ability of the driver to dim.
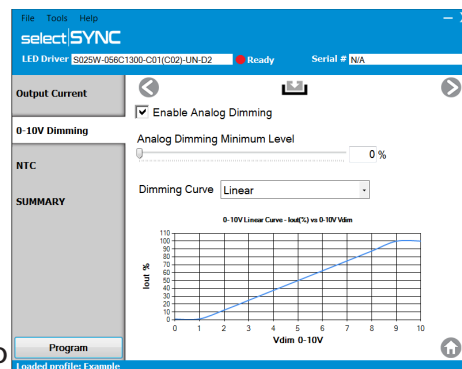
To the right of the Slider is a numeric percent Box readout of the Slider setting. You can manually enter a value here and the slider will adjust automatically. Entering a value this way also impacts the graph. We recommended that you use the slider to avoid errors. Two possible errors you may encounter include:

Out-of-range--If a number outside the Slider range of between 0% and 100% is entered a red "Alert Center" message will warn of being out-of-range.
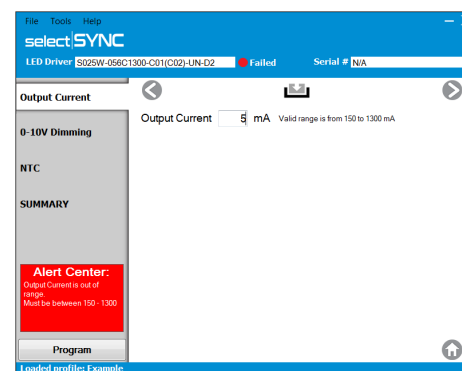
Invalid entry--If a non-numeric character or non-whole number is entered, a red "Alert Center" message will warn of invalid entry.

A **Dimming Curve** dropdown is below the dim low level slider on available models. It relates to the dimming relationship graph below it.

The default dropdown selection is the "Linear" option. This shows the relation between the driver output current and the 0-10V analog voltage as linear.

The alternate dropdown option is "Logarithmic." Selecting this shows the relation between driver output current and the 0-10V analog voltage as a logarithmic curve *(as seen in the graph at right)*.

The next and back Arrows are always on the screen with the following effects:
• The forward arrow advances you to the Thermal Protection screen.
• The back arrow now pushes you back to the Output Current tab screen.
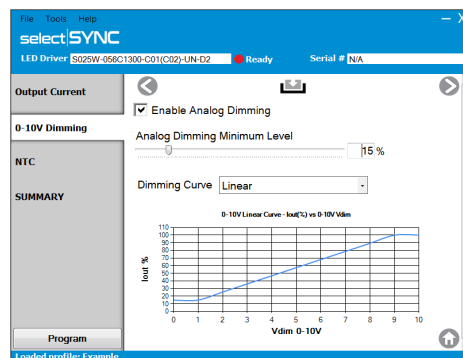
6) Clicking the **NTC tab** changes the main display area of the screen to offer two selection options and three adjustable parameters. See section 8, "Using NTC Thermal Protection" to understand and use the parameters below. The **Use** default selection uses the standard thermal settings indicated below. They will be grayed-out. The **Use custom** option allows you to enter custom values in the three lines below.

The **Derating Temperature Start** is the value of resistance sensing element at which any NTC resistance lower will cause the output current to proportionally lower. The 6.2 K Ohm default value is shown, along with a valid setting range.

The **Derating Temperature End** is the value of NTC resistance at which the driver has reached its minimum output current level. A resistance at or lower than this will not change the current further. The 2.0K Ohm default value is shown, along with a valid setting range.

The **Minimum Output Level** is the percentage of output current which the driver can be driven via NTC Thermal Protection. The 10 % default value is indicated, along with a valid setting range.

Two possible errors can occur in the three NTC entry adjustments:

Out-of-range--A red "Alert Center" out-of-range error occurs if a whole number outside the valid range indicated for any of the above three adjustment occurs. The error message will specify the adjustment in question.

Invalid Entry--A red "Alert Center" invalid entry error occurs if the Minimum Output Level adjustment contains non-numeric characters. The error message is specific to the adjustment in question.

The Screen Back Arrow now pushes you back to the 0-10V Dimming tab screen.
The Screen Advance Arrow advances you to the Summary screen.

7) The **Summary tab** extends into the main window, like the other tabs. It contains a table of Parameter settings. Columns are shown with "Existing setting" and "New setting" for each parameter. A **magnifier symbol** appears above the "Existing setting" heading. GUI process verbiage is underneath the table.

The Parameter column lists the various programmable settings that the GUI allows you to change. The "Existing setting" column is usually blank as default *(see picture above)*. It is populated with settings if a driver has already been queried via the Magnifier button or programmed via the Program button. The "New setting" column reflects all settings that currently have been changed or not.

Click the **Magnifier** button to query the existing settings of the driver as needed. Click the **Restore** Button above the New Settings Column as needed.
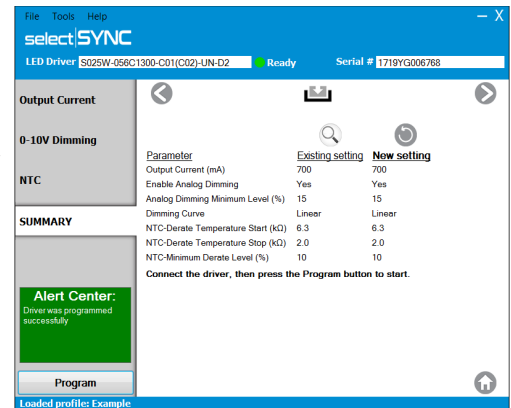
For Wired Programming communications, engage a driver with the WPC, (Wired Programming Cradle) by aligning and pushing the driver down on the plate.

For NFC Programming communications, engage a driver by the NFCW, (NFC Wand) by aligning the driver with the NFCW.

Note: After pushing the Magnifier button, you have a 10 second time limit to engage the driver. Success ends with the parameters being queried populating the existing settings column.

Extra verbiage about the programming process action is included below the table. The Back Arrow now pushes you back to the Thermal Protection tab screen. The Next Arrow does nothing.

8) Other Tabs are available depending on the driver. As these tabs appear, they will reveal similar Checkboxes, Sliders, and Data Entry lines as required.

9) The **Program button** is used before a driver is pressed into the Wired Programming Cradle or held to the NFC Wand. It will take any of the modifications listed in the "New setting" table column of the Summary tab and program the driver with them. Then it will populate the "Existing setting" to match the "New setting."

If programming is successful, you will see a green "Alert Center" message on the tab side of the Main Programming window above the Program button. An acknowledgement of pressing the Program button can be observed at the indicator adjacent to the right of the LED Driver Line. Here the Red "Ready" Indicator will change to Red "Programming" until the driver is engaged by the WPC or NFCW. Once the driver is detected, the ndicator will change to Yellow "Programming." When complete, the programming the indicator will change to Green "Ready." Upon releasing the driver from the WPC or the NFCW, the indicator will change back to Red "Ready."

If programming fails, a red "Alert Center" message will appear on the tab side of the Main Programming screen above the Program button. A further acknowledgement of unsuccessful programming is the same indicator adjacent to the right of the LED Driver Selected Line where the Red "Ready" indicator will remain Red with "Failed."

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10) The **Home Button** exists on the window in the lower right corner at all times. It simply takes you immediately back to the Main Menu window.

11) Dropdown Menu Features
Note that the Dropdown Menu features discussed here are also now available on the Main Selection Menu Screen.

A) The **File menu** offers five selections. They are Home, Open Profile, Save Profile, Change Access Level, and Exit.

1) The **Home** closes the main Programming Parameters widow, sending the user back to the Home screen.

2) The **Open Profile** allows you to load a profile again whether or not one has already been chosen. This selection here is the same as the Driver Profile File Select button on the Home screen.

3) The **Save Profile** opens a new window which allows one enter the name of the profile, a brief description, and a barcode. It also has a Save button where activation creates and adds the new profile to the Open Profile list. Lastly, there is a cancel button that simply returns you to the Main Programming screen.

If no profile was loaded, the Save Profile window displays unpopulated Name and Description fields.

If a profile was already loaded, The Save Profile window displays the populated name, description, and Barcode/Label lines of the already opened profile. Note that you cannot save two different profiles with the same name.

However, you can save multiple profiles with the same settings. In the case of saving new settings to an already existing profile name, a warning will note that parameters have changed and ask if you want to overwrite the profile.
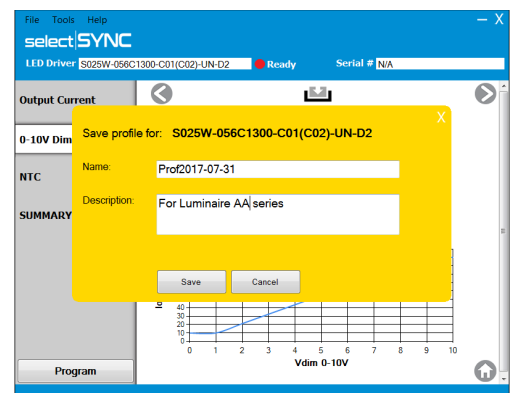
There are two ways to retrieve the Driver default settings: Select the home button, (or use the File menu to select Home) select the Driver Profile File button, select the "<None>" option, (the Checkmark will disappear from the File button) and advance to the Main Programming screen to program default settings.

Alternatively, from the Main Programming screen, you can go to the File drop down, select open profile, highlight the "<None>" option and select it. This returns the New settings to default for the chosen driver.

4) **Change Access Level.** Allows 3 levels of access with default security pins that can be changed later under the settings selection in the Tools dropdown *(to be discussed later)*. These levels of access are provided for management convenience and quality control. The description field appears only in this screen to assist with level selection. See summary at the top of the next page.

Summary of Security Levels

| Security Level	Default Pin Code	Typical Use	Basic Function
OEM Admin	3333	Engineering & Management	• Software Updates • Driver Settings/Profiles • Batch Programming
End User Admin	2222	Production Programming	• Driver Settings/Profiles • Batch Programming
OEM Production	1111	Production Management	• Batch Programming

Set Auto Login level by selecting a radio button next to the Security Level PIN field. This choice will be the default after exiting the Program and then restarting the software. For limited access settings, a higher level access PIN number will be required to make certain changes. This level change will be in effect until the level is manually changed or until the program is exited.
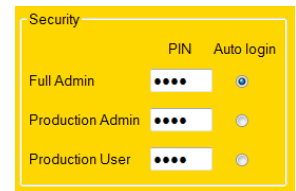
The 4 digit PIN numbers can be changed by highlighting the entire filed with your cursor and then typing a new 4 digit code. If fewer than 4 digits are entered, 4 dots will still appear in the hidden PIN field.

5) The **User Access Verification** window also has OK and Cancel buttons, as well as a "Remember me" Checkbox. The OK allows an appropriately entered pin to change access level of the user. The Cancel button closes the window. The Remember me checkbox allows someone who has entered the appropriate PIN to not have to enter it again to perform designated usage. Note that if an authorized PIN is not entered an Invalid PIN error message pops up to the right of the access code entry line.
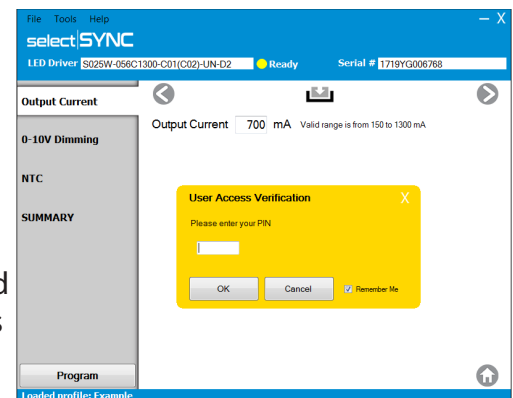
6) The **Exit selection** brings up a confirmation request with Yes and Cancel buttons. Selection of the Yes button will exit the Software. Cancel simply closes the confirmation window and returns you to the Main Programming screen.

B) Tools

1) The **Settings** button is available from the tools drop-down. The various global settings include batch mode, log directory locations, security access levels and security access pin numbers.

2) The **Log** Button opens a new window that shows a date list of activities logged in prior sessions. Highlight any day of interest from the list. This allows you to select the View button in the lower left of the Log window. It brings up the View Log widow display of activities for that day. Log information includes all manual and batch programming events.
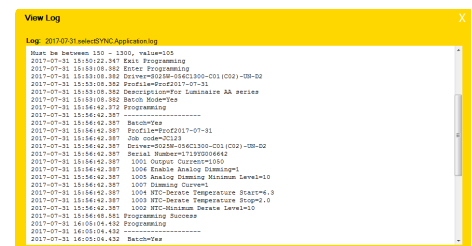
3) The **Batch** Button opens a Batch Log window that shows a date list. Highlight any day of interest from the list. This allows you to

select the View button in the lower left of the Log window. It brings up the View Log widow display of batch activities only for that day.

4) The Export opens a window that has four entry lines and two buttons. It allows you to export the current profile as a "filename.csv" file.
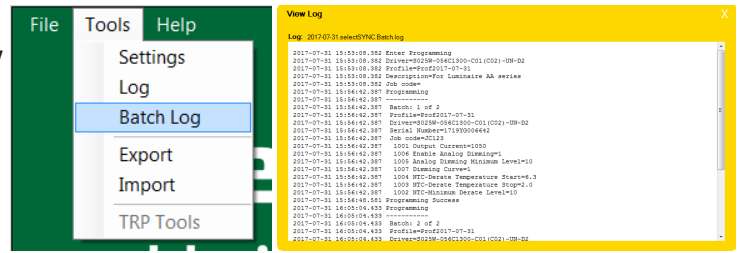
The 1st line has a dropdown to select the Driver model.
The 2nd line has a dropdown to select the Profile to export.
The 3rd line allows you to select a location to save your exported profile.
The 4th line allows you to name the file to be exported. If you click the on the Filename line via the cursor, the same information in the Profile to export line will populate the Filename line, along with the extension to save the file.

After exporting, you will receive an "Export Success" message. Click the X-close in the upper right corner of the message to close it.

A **"File already exists"** error will appears if the name being saved is already taken in the location the file is being exported.

An **"Invalid filename"** error will appears if disallowed characters are used.

The "Cancel" button simply closes the Export Profile window, returning you to the Main Programming window.

5) The **Import** Button opens a window with four command lines and two buttons. It allows you to import the current profile as a "filename.csv" file.

The 1st line allows you to enter an identifier by company. Import can still occur if no company is entered, but only if the name of the file being imported doesn't already exist as a profile. If a company is entered, the name will be defaulted in front of the filename of the imported profile.
The 2nd line has a location selection button for the file to import.
The 3rd line has a dropdown for selecting the driver the import applies to.
The 4th line asks for the name of the new profile.

Note "Another profile with that name already exists" error message will appear at the bottom of the window if you attempt to import a file with a name that is already in the profile list. Other possible errors can occur. For example, if you try to import a file that is not a *.csv type. The 5th line allows you to add a description of the profile being imported. After the "Import" performs successfully, you will receive a "Import Success" message. Click the X-Out in the upper right corner of the message to close.

The "Cancel" button simply closes the Export Profile window, returning the user to the Main Programming Parameters window.

6) The **TRP Tools** selection is a deactivated option for later use by authorized TRP personnel.

C) HELP

1) The **Help Index** selection allows you to access this user manual in a viewing window.

2) The **Check for Updates** selection allows you to see if your software and UCM firmware is the latest revision available. A window will offer several ways to check if the software is up-to-date. If the software is not up-to-date, you will be directed through an updating process. If the software is up-to-date the following message will occur. A similar message will occur if the firmware is up-to-date.

3) The **About** selection shows you the current software revision they are using.

Check for updates   X

PC Software   Firmware

Check online   Check online

About   X

SelectSYNC Universal Configurator™

Product version: 1.0.0.21

Firmware version: 2.0.3

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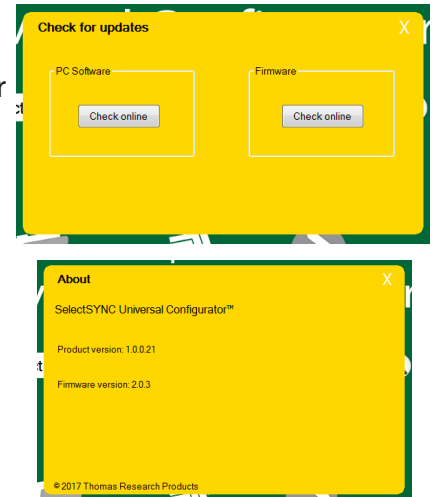
6) Example Programming Steps

A) Programming Driver(s)

1. Wired Programming
- Configure wired hardware and run *SelectSYNC*.
- Select wired Driver to program.
- Select Advance Arrow to advance to the Main Programming screen.
- Change output current on Output Current tab to desired value.
- Advance to other tabs and make changes as desired (if available).
- Select Summary tab.
- Select Program button.
- Engage driver in Wired Programming Cradle.
- Upon acknowledgement of successful programming, release driver from cradle.

2. NFC Programming
- Configure NFC hardware and run *SelectSYNC*.
- Select NFC Driver to program.
- Select Advance Arrow to advance to the Main Programming screen.
- Change output current on Output Current tab to desired value.
- Advance to other tabs and make changes as desired (if available).
- Select Summary tab.
- Select Program button.
- Engage driver with NFC Wand.
- Upon acknowledgement of successful programming, release driver from cradle.

B) Production Batch Programming

1. Wired Programming
- Configure wired hardware and run *SelectSYNC*.
- Select wired Driver to program.
- Select Profile File Select button.

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- Highlight and Select profile.
- Select the Batch Programming Select button.
- Enter quantity count number to be programmed.
- Select Program button.
- Engage 1st driver in Wired Programming Cradle.
- Upon acknowledgement of successful programming, release driver from cradle.
- Engage the next driver.
- Upon acknowledgement of successful programming, release driver from cradle.
- Keep engaging and programming drivers successfully until the last one is reached.
- Upon acknowledgement of successful programming of the last driver you will receive "You have completed the batch" message in the window, along with a thumbs-up icon.
- Selecting the thumbs-up icon will send the GUI back to the Home screen.

2. NFC Programming
- Configure NFC hardware and run *SelectSYNC*.
- Select NFC Driver to program.
- Select Profile File Select button.
- Highlight and Select profile.
- Select the Batch Programming Select button.
- Enter quantity count number to be programmed.
- Select Program button.
- Engage 1st driver with NFC Wand.
- Upon acknowledgement of successful programming, disengage driver with NFC Wand.
- Engage the next driver.
- Upon acknowledgement of successful programming, disengage driver with NFC Wand.
- Keep engaging and programming drivers successfully until the last one is reached.
- Upon acknowledgement of successful programming of the last driver you will receive "You have completed the batch" message in the window, along with a thumbs-up icon.
- Selecting the thumbs-up or home buttons will send the GUI back to the Home screen.

7) Using Thermal Protection

A.   Description

The Thermal Protection feature allows for sensing the temperature of an LED Light Engine. A NTC thermal sensing element is placed appropriately upon the LED Light Engine and is wired to the LED Driver. As the location where the element is placed on the LED Light Engine heats, the NTC changes from a high resistance value to a lower one. The change of resistance (lower) is directly proportional to a reduction in output current (lower) of the LED Driver.

B.   Default Programming

In the Thermal Protection tab of the Main Programming screen the user is defaulted to Derating Temperature Start

Output Current (%) vs. NTCS0805E3153GMT NTC Temp (°C)

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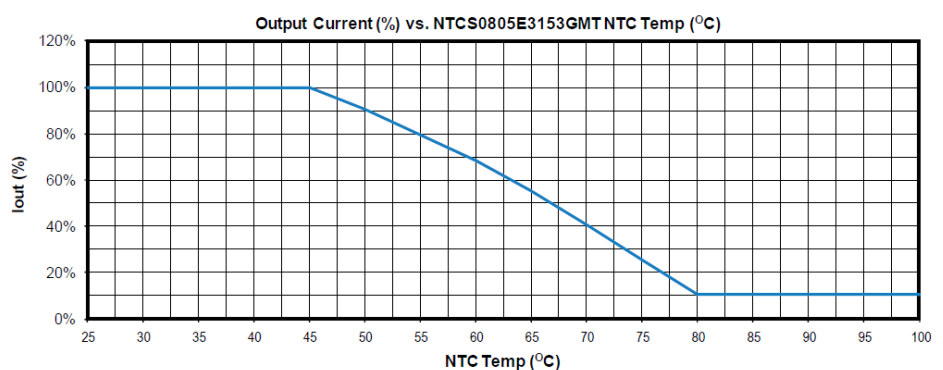
equals 6.3K Ohm, Derating Temperature End equals 2.0 K Ohm, and Minimum Output Level equals 10%. These are grayed-out and held in place by a Use defaults selection point. This means the approximate detected temperature at which one would desire current reduction to begin restrain temperature rise requires that the resistance of the sensing NTC must be about 6.3K Ohm at the desired Derating Temperature Start. If the temperature of the NTC sensing element keeps climbing, the percentage of output current available to the load will decrease. At some maximum temperature where the NTC reaches 2.0K Ohm Derating Temperature End, the output current will be driven down to the user adjusted Minimum Output Level.

Note: We recommend that you try this function experimentally to verify the actual performance of your design versus the theoretical performance calculations to insure proper usage. A NTC sensing element is mostly restricted to surface mount components, unless extreme sophistication in both sensing and application is attempted.

C.   **Choosing an NTC Sensing Element**
The NTC sensing elements for sensing LED Light Engine temperatures are recommended to be Surface Mount Device, 0805 size components. These devices are specified for resistance at 25°C. This is known as R25 Resistance. Since the resistance continuously decreases with temperature, NTC suppliers usually supply a temperature versus resistance table or even an Excel version calculator for the resistance versus temperature curve. Also note that the valid data ranges for Derating Temperature Start and End limit the range of available NTCs. One couldn't start derating the current with temperature with resistances greater than 7.5K Ohm at the presumably high temperature one would expect to use; likewise, resistances of 1K Ohm minimum are where one would have to stop reducing the current with a defined Minimum Output Level.

D.   **Example NTC Application**
For this example we will assume a hot spot on the LED Light Engine exists such that the surface mount NTC can be placed at or near, along with pc board wiring and connection ability back to the Led Driver. The example part chosen is a Vishay NTC Part number is: NTCS0805E3153GMT.

From Vishay Spec Table:
R25 = 15K Ohms
R45 = 6.94K Ohms
R82 = 2.05K Ohms

So if the default setting is used for Thermal Protection, the Driver output current will start to decrease for resistances less than 6.3K Ohms and temperatures greater than 45°C. The higher the temperatures goes, the more the resistance will fall, in turn reducing the current. When or If the temperature reaches 82°C or above, the resistance will have fallen to approximately 2.0K Ohms and the current will have fallen to 10% of the constant current, 100% output value. If the temperature continues to rise, there is no further limitation that can be performed. This can be shown graphically as:

Note: If the Minimum Output Level was changed to 1% instead of left at the default 10%, the driver current would dim to 1% output at about 82°C. This would change the above graph respective of the Minimum Output Level change mentioned above.
From here it's not hard to imagine the variations that can occur with temperature and adjustments of the Thermal Protection.

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8) Troubleshooting & FAQs
(For future use)

9) Revision History
This manual is up-to-date with latest revision is depicted below.