



Programmable ERP Driver Configuration Tool Instructions

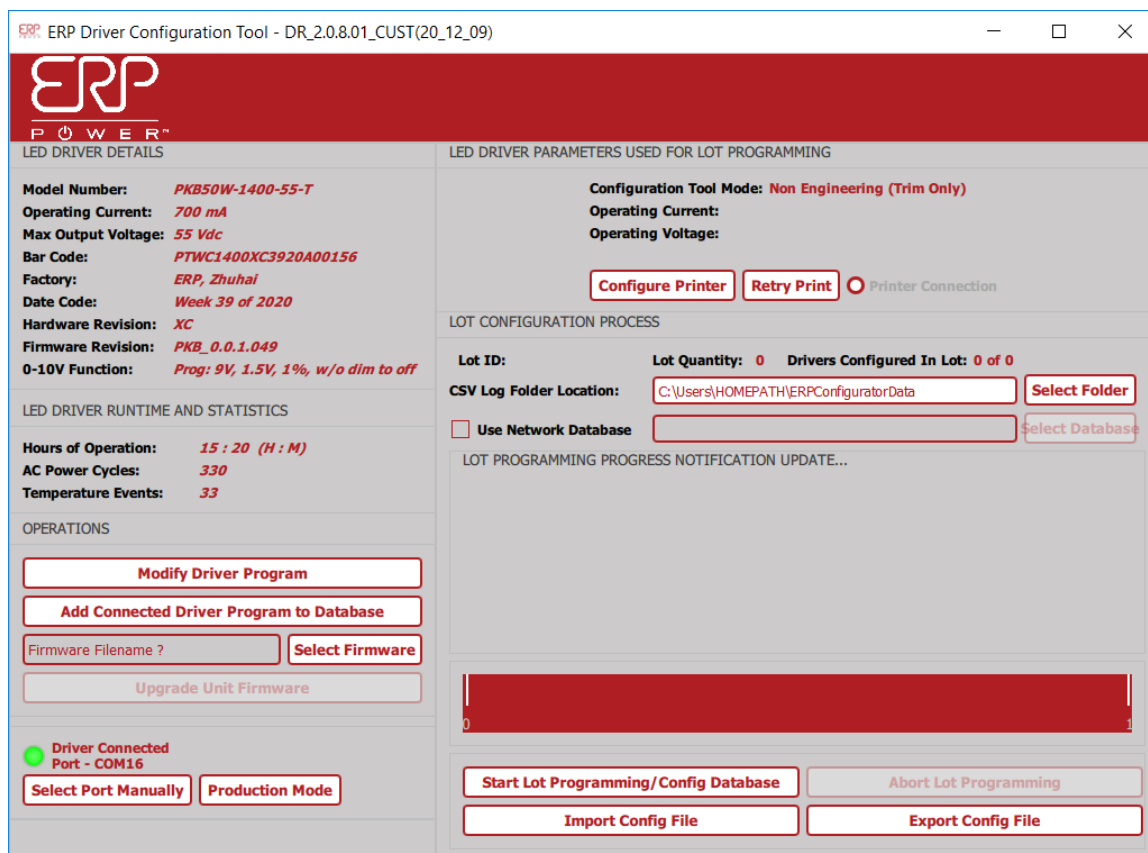
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INTRODUCTION

The Draco line of LED drivers from ERP Power LLC, are entirely customer configurable, allowing the drivers to perfectly serve specific and varied application requirements. This is achieved using an innovative set of, user accessible, configuration parameters, before, during or after, the time of deployment.

THE TOOL



ERP provides a versatile, and easy to use piece of software called the “ERP LED Driver Configuration Tool”, also referred to as, “The Customer GUI” (Graphical User Interface), along with a programming cable, “USB-JACK” or “NFC Cable”, to read from and configure ERP Draco LED drivers. The Customer GUI is available from ERP as a computer desktop application that runs on the Windows Operating System. This tool is also available in a handheld, or Satellite, device form from ERP. This document covers only The Customer GUI Windows software; the Satellite tool is covered in a separate document available from ERP upon request. The Customer GUI provides a Graphical User Interface, for connecting to, configuring, and reading from all programmable Draco line of LED drivers.



The USB-JACK cable, provided for configuring Draco LED drivers, uses a USB port to connect to a computer, and a proprietary barrel jack connector, to interface with the Draco LED driver. The NFC cable, provided for configuring NFC series of drivers, uses a USB port to connect to a computer and an NFC wand to interface with NFC series of drivers.

Power is supplied by the USB-JACK or NFC cable, thus allowing the user to configure a driver without the need to apply AC power to the driver to power it up. It is also safe to use the USB-JACK or NFC cable on a driver currently powered by AC, or to power up a driver with AC, even if a cable is already plugged or placed onto the driver, prior to the application of power. Every USB-JACK and NFC cable contains an EMI filtering choke and a self-resetting current fuse to protect the user's computer in the event of a fault or transient event on the driver.

ERP LED DRIVER CONFIGURATION TOOL INSTALLATION

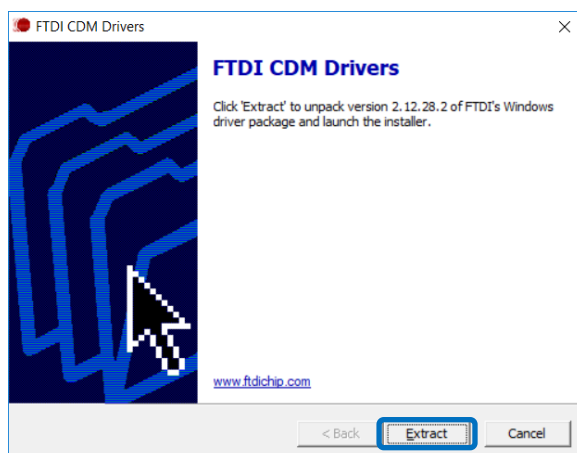
1.1. REQUIRED DRIVERS AND FILES

The FTDI CDM Driver will be used for both USB-JACK and NFC cables. Before downloading and installing the latest version of the ERP LED Driver Configuration Tool, please ensure any previous versions have been uninstalled.

If this is the first time you are installing the ERP LED Driver Configuration Tool onto your computer, also download and install the driver software for the USB-JACK and NFC cables, either supplied with the Customer GUI software by ERP, or downloaded directly from FTDI Chip's website:

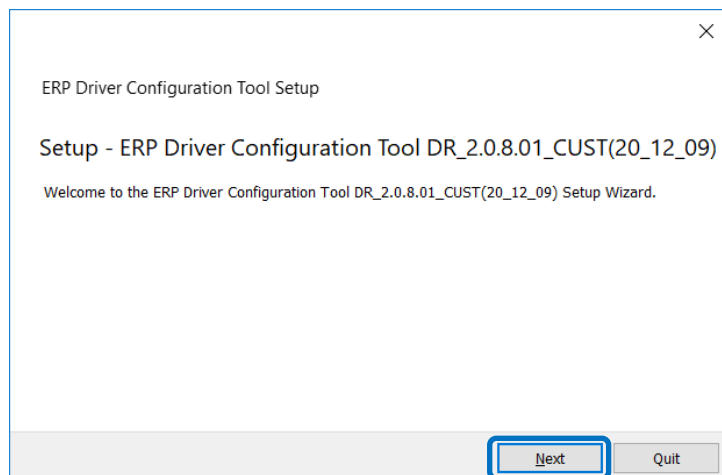
<http://www.ftdichip.com/Drivers/VCP.htm>

To install the required USB-JACK and NFC cable drivers simply download, extract, and install the driver setup file.

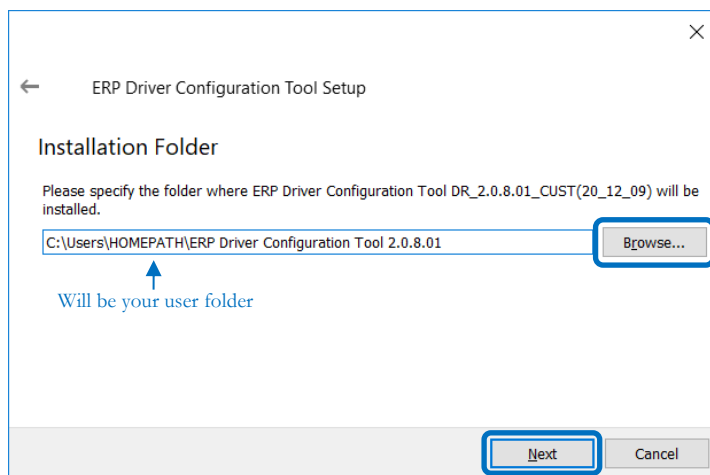


1.2. INSTALLATION

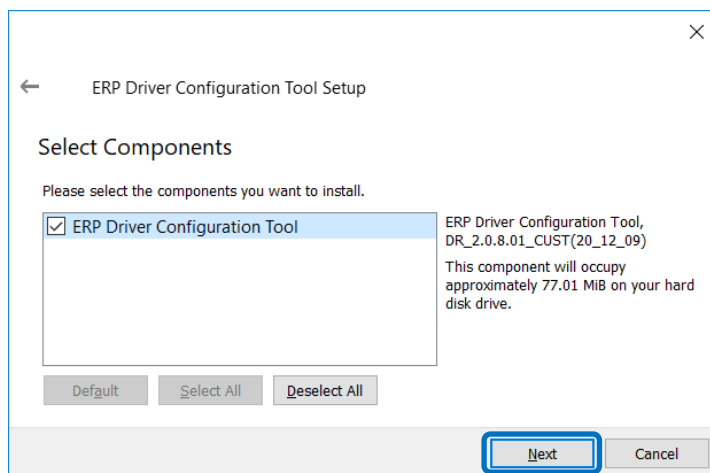
Launch the ERP Driver Configuration Tool setup file, and click **Next**:



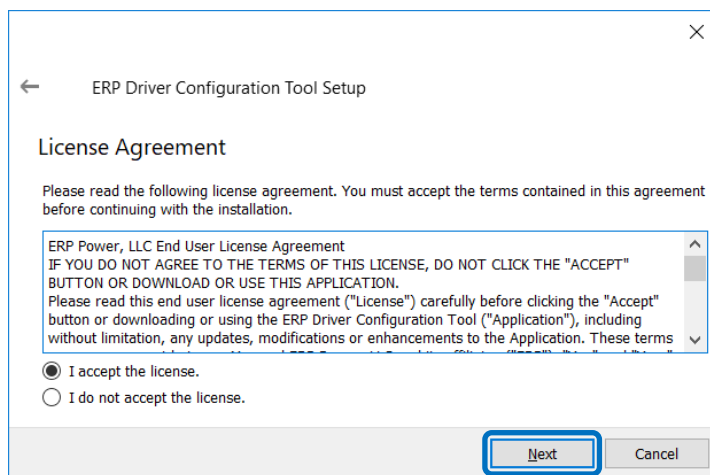
Specify the installation directory and click Next, the default location is: “%HOMEPATH%\ERP Driver Configuration Tool 2.0.8.01”:



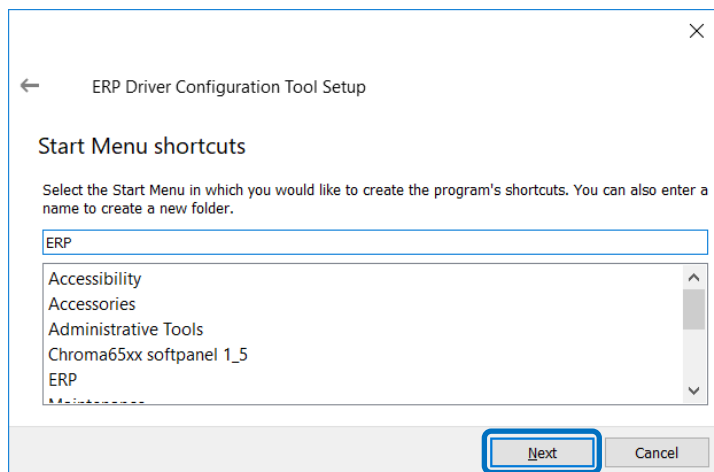
Click **Next** on the following screen, ensuring “ERP Driver Configuration Tool” is checked:



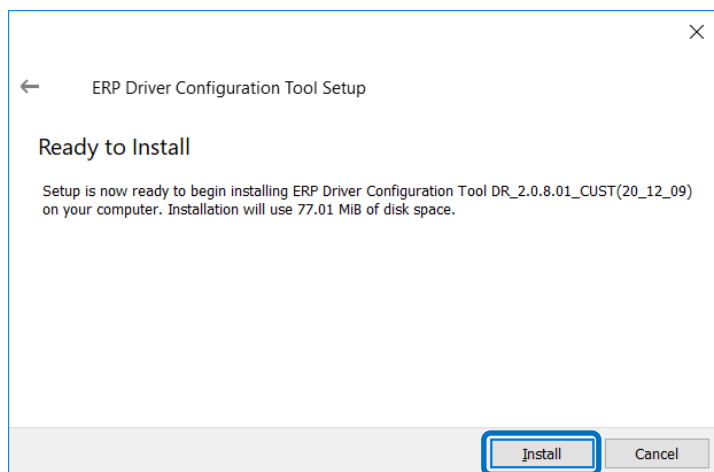
Read through, and accept the license terms, if you wish to continue with the installation:



Specify the Start Menu shortcut folder name, the default is “ERP”, then click **Next**:

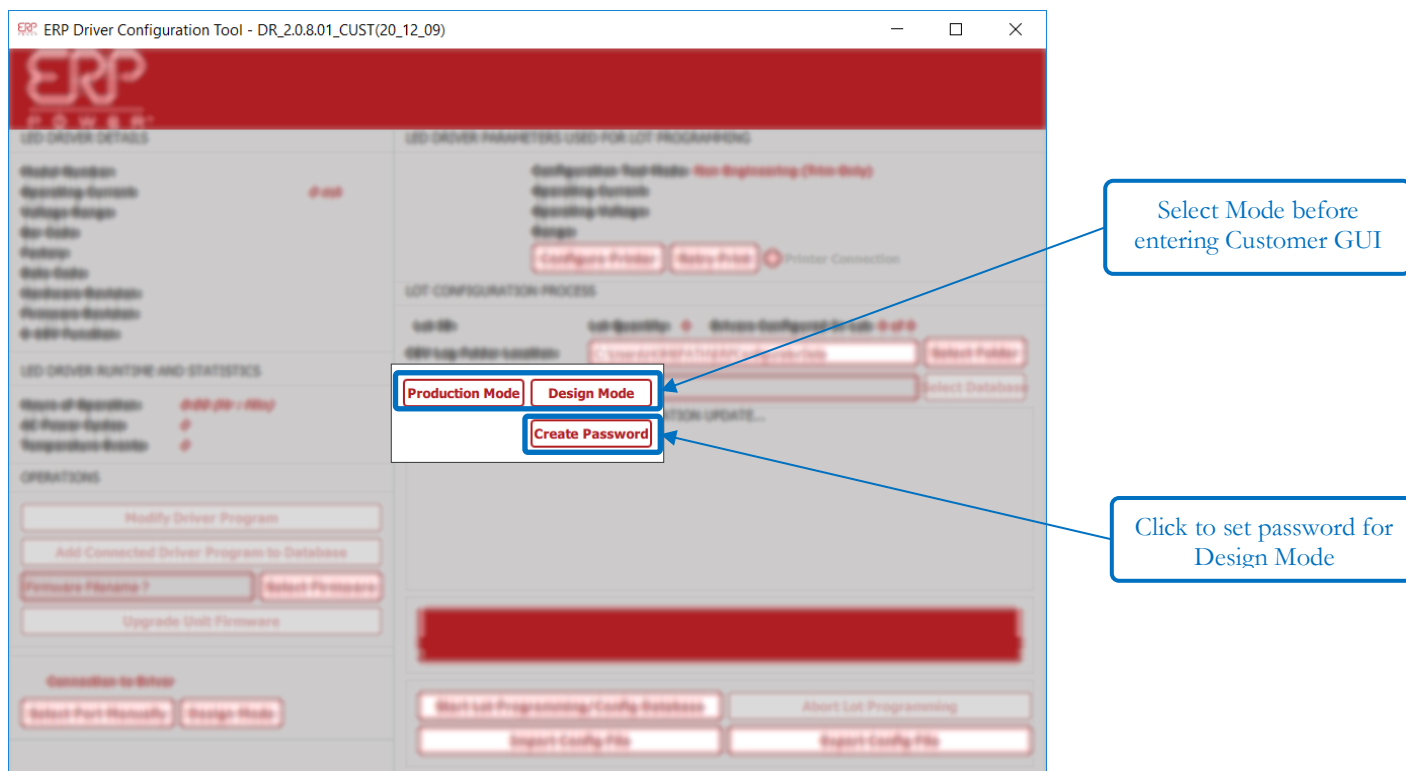


Finally, click **Install**:



CUSTOMER GUI MODES

Users of the Customer GUI will be asked to select between Production Mode or Design Mode upon startup. To avoid unauthorized changes to driver configurations, the Design mode can be password protected and users will be prompted to type the password prior to entering Design Mode. Once the password has been entered, users may enter Design Mode or remove the password via the Reset Password Button.



2.1. PRODUCTION MODE

Production Mode is intended to be used when programming multiple drivers without modifying the driver's programmed configuration for each individual driver. Driver programming may be performed by selecting a desired configuration that is available in the Configuration Database.

Production Mode is to be used when a driver's configuration is not intended to be edited or changed; thus, the **OPERATIONS** section will not be available in this mode. The ability to modify the driver program, add the driver's program to the Configuration Database, or update a driver's firmware will be unavailable when in production mode.

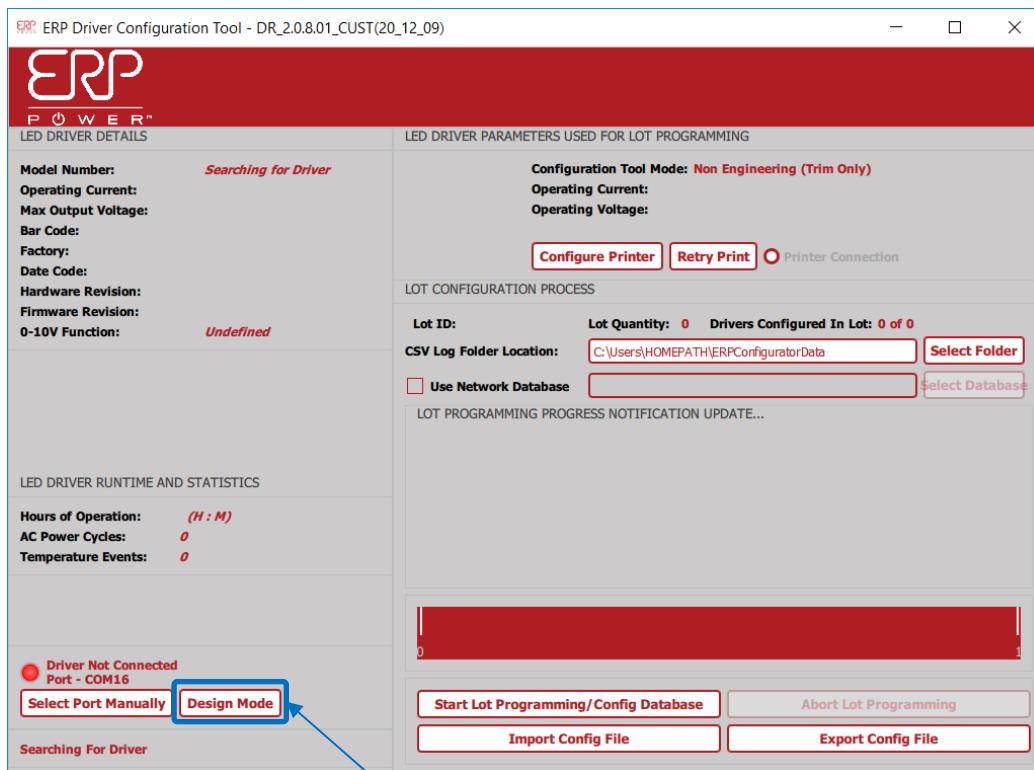
A driver configuration should be available before entering Production mode by adding a driver's program to the Database while in Design Mode or by selecting a listed configuration from the Configuration Database.

2.2. DESIGN MODE

Design Mode is intended for use when modifying the driver program of an individual driver. In this mode, the various aspects of a driver's operation can be modified. A particular driver's configuration may be added to the Driver Program Database and configurations may be deleted or renamed as well.

The specific sections of the driver's program that can be edited will vary depending on the particular Draco driver that is to be programmed; thus, some options may be unavailable depending on the supported parameters of the driver. The sections that may be edited include: **Voltage Range, Programming Current, NTC Functionality, Program Current, Dimming Configuration, etc.**

Users may manually enter Design or Production Modes by pressing the Mode Button located on the bottom left of the Customer GUI.

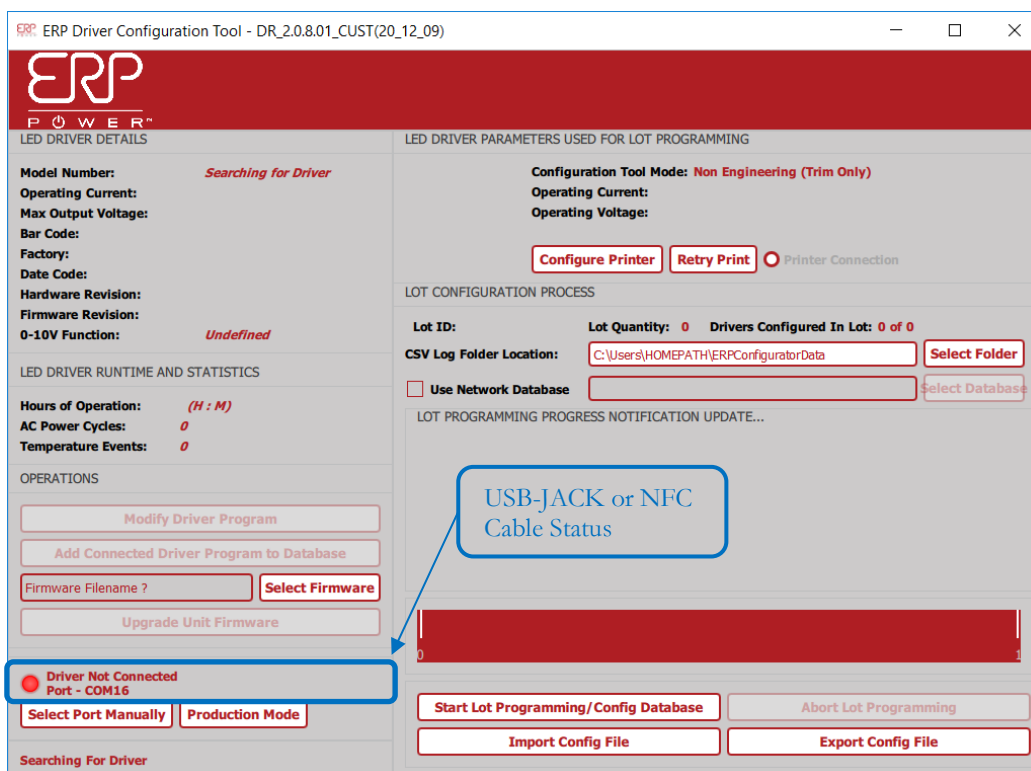


Manually enter
Design/Production Mode
by pressing button.

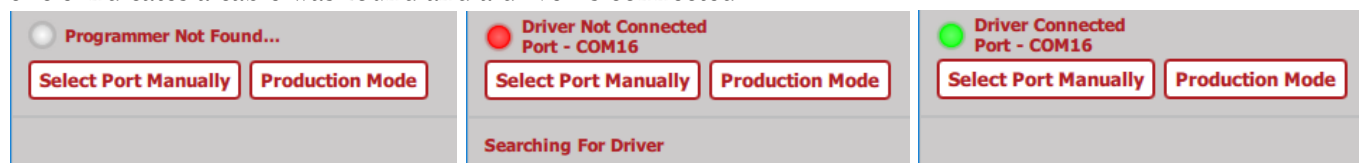
READING A DRACO LED DRIVER

3.1. CONNECTING THE PROGRAMMING CABLE

Ensure that the USB-JACK or NFC programming cable is connected to your computer. To verify that the cable is properly installed, launch the ERP Driver Configuration Tool.



In the lower left portion of the screen, the programming cable's status is listed. A **Grey** circle indicates no programming cable was found; a **Red** circle indicates a cable was found, but no driver is connected; a **Green** circle indicates a cable was found and a driver is connected.



If a USB-JACK or NFC cable is not found, please ensure that the latest cable drivers from FTDI's website are installed, and that no other additional instances of the DRP Driver Configuration Tool are concurrently running.

(Note: COM Ports are assigned by Windows; as such, the listed COM port numbers on your computer may not match the numbers listed in this user manual. Furthermore, any example COM port numbers listed in this user manual, are strictly for demonstration purposes only.)

3.2. READING A DRIVER

3.2.1. USB-JACK Barrel Cable:

Insert the USB-JACK cable into a Draco LED Driver to begin reading the stored configuration of the driver



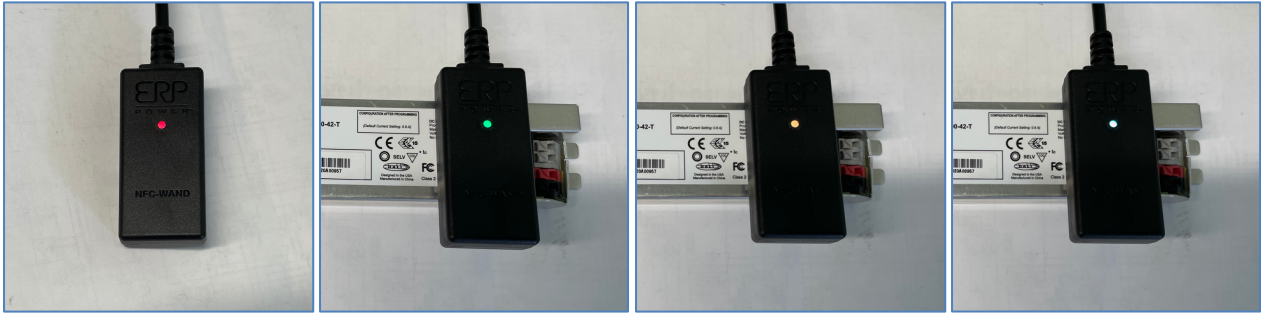
3.2.2. NFC Cable

Place NFC wand above NFC logo printed on driver label.

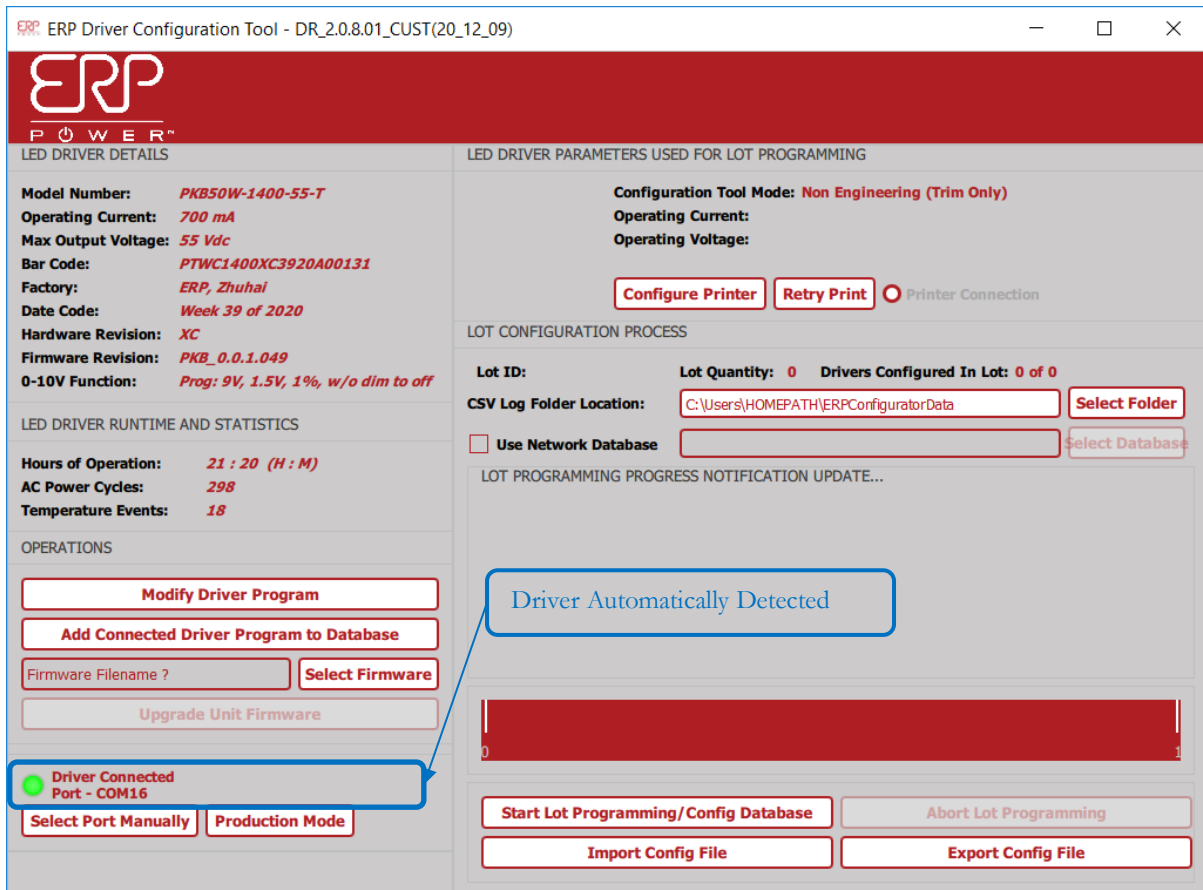


The NFC wand has an indicator LED that will change color depending on the programming cable status.

- No light indicates that the programming cable is not properly connected.
- A **Red** light indicates a cable was found, but no driver is connected.
- A **Green** light indicates a cable was found and a driver is connected.
- A **Yellow** light indicates that the Configuration Tool is reading the stored configuration of the driver.
- A **White** light indicates that the Configuration Tool is programming the driver.



The ERP Driver Configuration Tool will automatically detect the connected driver and read the stored configuration of the driver.

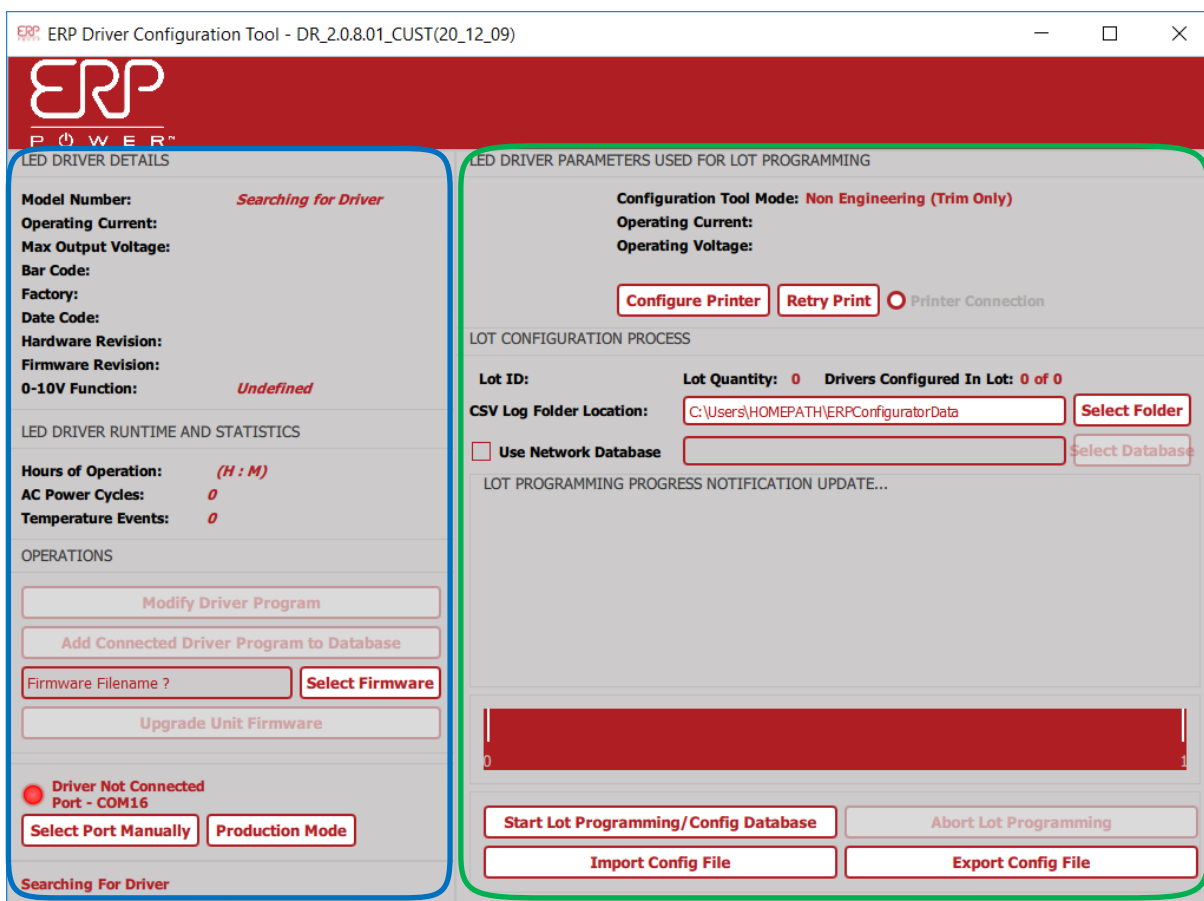


DRIVER CONFIGURATION WINDOW

4.1. CONFIGURATION TOOL LAYOUT

The main window on the ERP Driver Configuration Tool is divided into two portions: the left half displays the connected Draco Driver's configuration attributes that are currently stored in that connected driver, while the right half shows the configuration settings which will be sent to the driver and contains the Lot Configuration (Mass Production) settings.

If there is no Draco Driver currently connected, the left-hand information panel will be blank.



The screenshot shows the ERP Driver Configuration Tool window with the title "ERP Driver Configuration Tool - DR_2.0.8.01_CUST(20_12_09)". The window is divided into two main sections:

- LED DRIVER DETAILS (Left Panel):** This panel displays configuration attributes for a connected driver. It includes fields for Model Number, Operating Current, Max Output Voltage, Bar Code, Factory, Date Code, Hardware Revision, Firmware Revision, and 0-10V Function. Below these are runtime and statistics for Hours of Operation, AC Power Cycles, and Temperature Events. At the bottom, there are buttons for "Modify Driver Program", "Add Connected Driver Program to Database", "Firmware Filename ?" with a "Select Firmware" button, "Upgrade Unit Firmware", and a status section indicating "Driver Not Connected Port - COM16" with "Select Port Manually" and "Production Mode" buttons. A "Searching For Driver" status is shown at the very bottom.
- LOT CONFIGURATION PROCESS (Right Panel):** This panel is used for mass production settings. It includes a "Configuration Tool Mode" set to "Non Engineering (Trim Only)", fields for "Operating Current" and "Operating Voltage", and buttons for "Configure Printer", "Retry Print", and "Printer Connection". Below this is the "LOT CONFIGURATION PROCESS" section with fields for "Lot ID", "Lot Quantity" (0), and "Drivers Configured In Lot" (0 of 0). It also has a "CSV Log Folder Location" field with a "Select Folder" button and a "Use Network Database" checkbox with a "Select Database" button. At the bottom, there are buttons for "Start Lot Programming/ Config Database", "Abort Lot Programming", "Import Config File", and "Export Config File".

Connected Driver
Attributes and Options

Mass Production Mode
Options

4.1.1. INFORMATION PANEL LAYOUT

Here is a brief description of each of the status fields that show up when a driver is plugged in.

(**Note:** Some options may or may not be present, depending on the available parameters for the particular Draco model connected to the computer.)

LED DRIVER DETAILS	
Model Number:	<i>PDB260W1050-345ABL8</i>
Operating Current:	<i>750 mA</i>
Voltage Range:	<i>High (263 to 345 V)</i>
Open Circuit Voltage:	<i>400 Vdc</i>
Bar Code:	<i>PA8W1050B25017AS0001</i>
Factory:	<i>ERP, Zhuhai</i>
Date Code:	<i>5017</i>
Firmware Revision:	<i>DR1NTC_B_17_47_10</i>
NTC Function:	<i>Enabled No Flash</i>
NTC Rel:	<i>8000 ohms</i>
NTC Top:	<i>7000 ohms</i>
NTC Bot:	<i>1000 ohms</i>
NTC Min:	<i>10 %</i>
LED DRIVER RUNTIME AND STATISTICS	
Hours of Operation:	<i>1 : 50 (H : M)</i>
AC Power Cycles:	<i>80</i>
Temperature Events:	<i>11</i>
Line Transient Events:	<i>36</i>

- **Model Number:** ERP part number (or customer SKU) programmed into the unit.
 - **Operating Current:** This is the configured output current.
 - **Operating Voltage:** This is the maximum operating voltage.
 - **Open Circuit Voltage:** This is the maximum voltage output if the driver is not connected to an LED load.
 - **Bar Code:** Unit's serial number
 - **Factory:** Origin manufacturing factory
 - **Date Code:** The date of manufacturing (WWYY - week# and year#)
 - **Firmware Revision:** The version of firmware inside the driver.
 - **NTC Function (optional):** The configured functionality of the external NTC protection
 - **NTC Rel (optional):** The release threshold in ohms, for the external NTC functionality.
 - **NTC Top (optional):** The top trigger threshold in ohms, for the external NTC functionality.
 - **NTC Bot (optional):** The bottom trigger threshold in ohms, for the external NTC functionality
 - **NTC Min (optional):** The minimum output level, in percentage, that the external NTC functionality will throttle down to.
 - **Hours of Operation:** Total time the supply has been powered (HH:MM), in 10-minute intervals.
 - **AC Power Cycles:** Total number of times the supply has been powered up.
 - **Temperature Events:** Number of times the supply temperature has exceeded a threshold
- Note:** Temperature thresholds vary by product (~90°C typ.)
- **Line Transient Events:** Cumulative number of line transients or output short circuit events seen during operation.

4.2. TRIM PANEL LAYOUT

Configuring or trimming, and firmware updating an individual driver is handled in the “**Operations**” area of the Customer GUI. (**Note:** the Operations section is not available when the Customer GUI is operating in Production Mode)

Once a driver is connected to the computer, it’s configuration parameters can also be added to the internal database and stored within the ERP Driver Configuration Tool. From top to bottom, here is a brief description of each of the buttons and fields available:

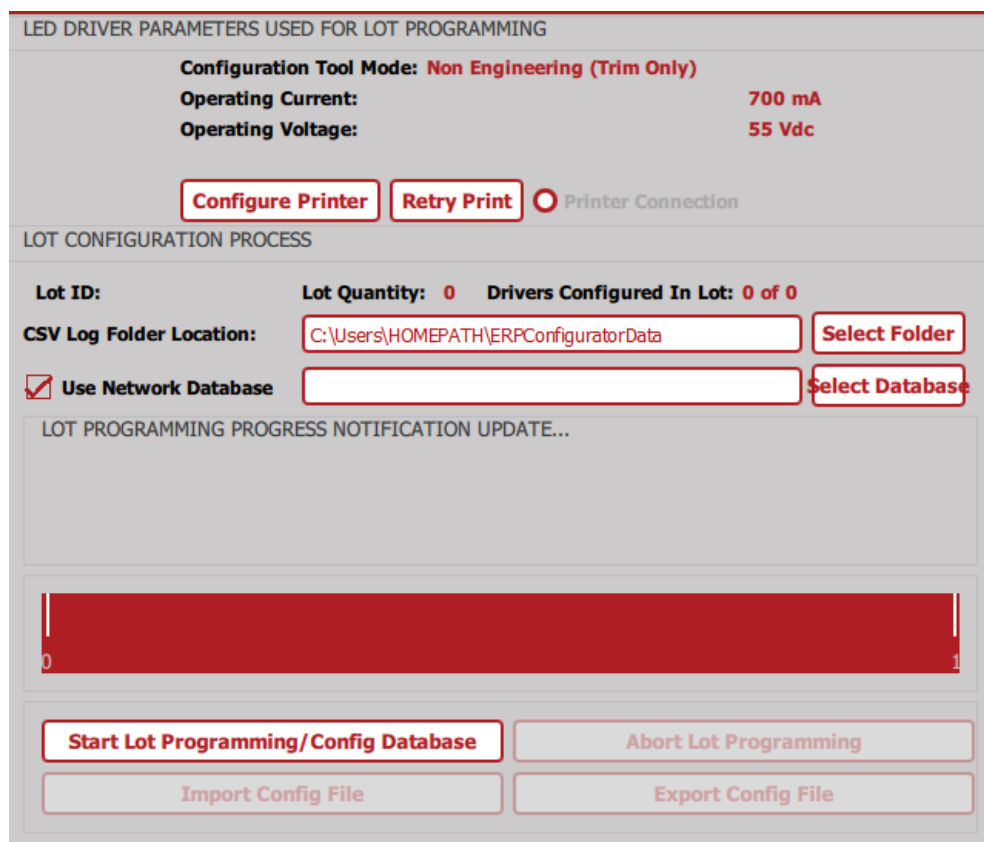
The screenshot shows the 'OPERATIONS' section of the software interface. It includes the following elements:

- Modify Driver Program**: A button for adjusting driver settings.
- Add Connected Driver Program to Database**: A button for saving driver configurations.
- Firmware Filename ?**: A text input field for specifying the firmware file.
- Select Firmware**: A button to choose a firmware file.
- Upgrade Unit Firmware**: A button to initiate the firmware update process.
- Driver Connected Port - COM16**: A status indicator with a green circle.
- Select Port Manually**: A button to choose a different serial port.
- Production Mode**: A button to toggle between Production and Design modes.

- **Modify Driver Program:** Allows the user to adjust the output current, voltage range, and NTC functions of the connected driver.
- **Add Connected Driver Program to Database:** Adds the configuration attributes, of the connected driver, into the local database, stored within the ERP Driver Configuration Tool, for later use.
- **Select Firmware:** Used for selecting the firmware file that will be used to update the connected driver.
- **Upgrade Unit Firmware:** Begins the firmware updating process, using the firmware file selected.
- **Cable Connection Status:** Gives the status of the programming cable, and whether a Draco driver is connected. **Grey** signifies no cable was found, **Red** means a cable was found and **Green** means a driver was found and read from.
- **Select Port Manually:** Allows the user to select the serial port that the programming cable is connected to.
- **Production/Design Mode:** Allows users to manually select between Production or Design Mode.
- **Information Panel:** Informs the user of actions performed by the Customer GUI, such as adding a driver configuration to the internal Database.

(**Note:** The Select Firmware Button may be unavailable for particular Draco model units which do not support updated firmware.)

4.2.1. LOT CONFIGURATION PANEL



The Lot Configuration Panel displays relevant information and buttons used for mass configuring of multiple drivers in a sequence with a chosen configuration.

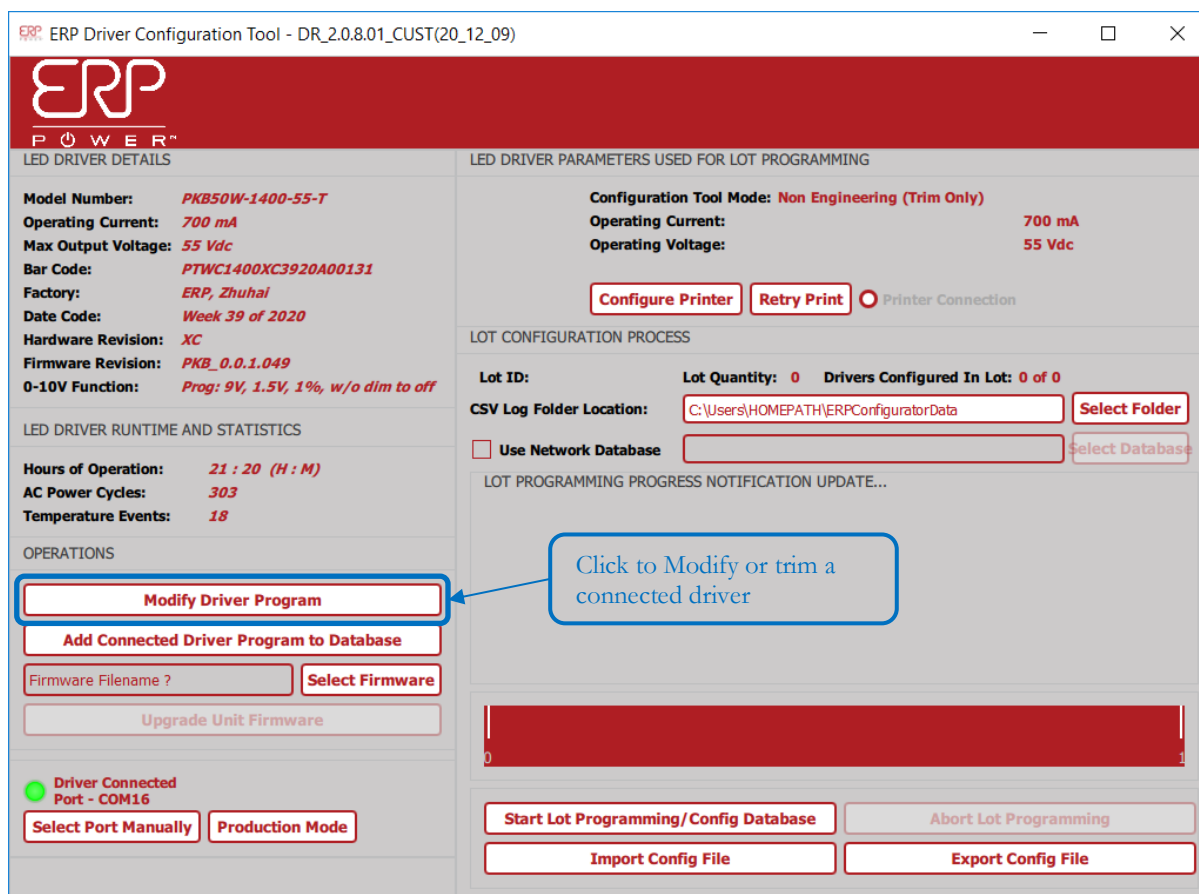
- **LED Driver Parameters Used for Lot Programming panel:** Displays the relevant settings that will be used to configure an individual or a large lot of drivers.
- **Configure Printer:** Used to select a printer's serial port, printer type, label size, and fields for printing.
- **Retry Print:** Used to reattempt printing if printer fails to print label during lot configuration.
- **Lot Configuration Process:** Displays the ongoing status of an in-progress lot of drivers being configured.
- **Select Folder:** Used to determine the location that the CSV Log will be saved to.
- **User Network Database:** Check mark to indicate when CVS Log is to be saved to Network Database.
- **Select Database:** Used to determine the Database location that the CSV Log will be saved to.
- **Lot Configuration Progress Notification Update:** Shows the user the next required step during the driver lot configuration.
- **Start Lot Configuration:** Brings up the lot configuration window, allowing the user to configure and begin the lot configuration process.
- **Abort Lot Configuration:** Allows the user to abort, or cancel, an in-progress lot configuration.
- **Import Config File:** Will prompt the user with an add file dialogue, allowing the user to import a database config file, for different driver configurations.
- **Export Config File:** Opens a save file dialogue box, allowing the user to share the driver configurations, stored within their ERP Driver Configuration Tool's internal database.

CONFIGURING DRACO DRIVERS

5.1. TRIMMING A DRIVER

Trimming, or modifying the programmed settings of an individual driver is a simple and straight forward process. To begin, ensure a Draco driver is connected to your computer, then press the **Modify Driver Program**.

(**Note:** Output current can be modified on a driver currently powered with AC, however, do not attempt to alter the output voltage range on a driver currently powered with AC.)



ERP Driver Configuration Tool - DR_2.0.8.01_CUST(20_12_09)

LED DRIVER DETAILS

Model Number: *PKB50W-1400-55-T*
 Operating Current: *700 mA*
 Max Output Voltage: *55 Vdc*
 Bar Code: *PTWC1400XC3920A00131*
 Factory: *ERP, Zhuhai*
 Date Code: *Week 39 of 2020*
 Hardware Revision: *XC*
 Firmware Revision: *PKB_0.0.1.049*
 0-10V Function: *Prog: 9V, 1.5V, 1%, w/o dim to off*

LED DRIVER RUNTIME AND STATISTICS

Hours of Operation: *21 : 20 (H : M)*
 AC Power Cycles: *303*
 Temperature Events: *18*

OPERATIONS

Modify Driver Program

Add Connected Driver Program to Database

Firmware Filename ? **Select Firmware**

Upgrade Unit Firmware

LED DRIVER PARAMETERS USED FOR LOT PROGRAMMING

Configuration Tool Mode: **Non Engineering (Trim Only)**
 Operating Current: **700 mA**
 Operating Voltage: **55 Vdc**

Configure Printer **Retry Print** ☐ Printer Connection

LOT CONFIGURATION PROCESS

Lot ID: **Lot Quantity: 0 Drivers Configured In Lot: 0 of 0**

CSV Log Folder Location: **Select Folder**

☐ Use Network Database **Select Database**

LOT PROGRAMMING PROGRESS NOTIFICATION UPDATE...

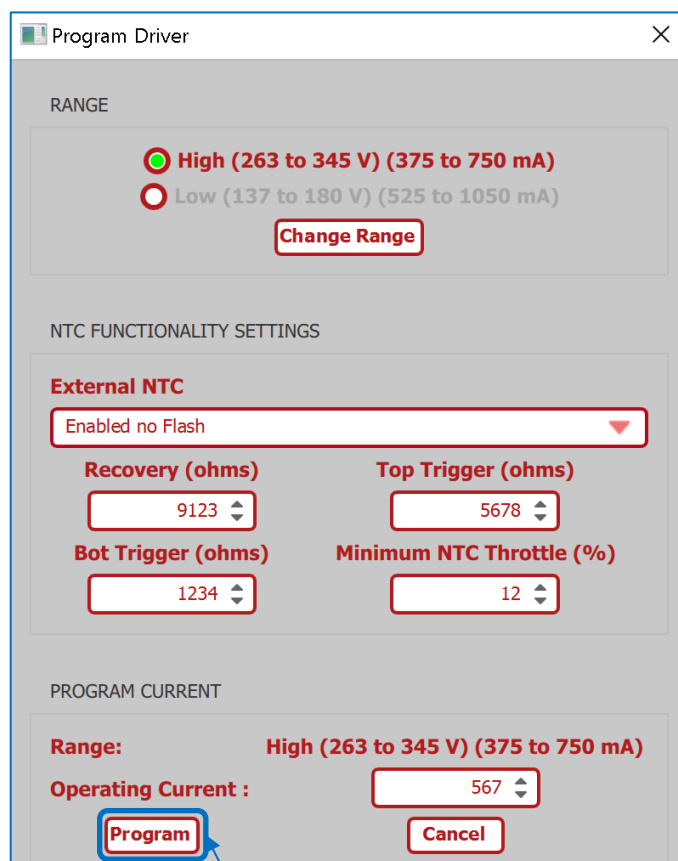
Click to Modify or trim a connected driver

Start Lot Programming/Config Database **Abort Lot Programming**

Import Config File **Export Config File**

Driver Connected
 Port - COM16
Select Port Manually **Production Mode**

After pressing the **Modify Driver Program** button, a new window will popup, the **Program Driver** dialogue box. Several attributes are available for configuration from this dialogue. Some options may or may not be present depending on the particular Draco model that is currently being modified:



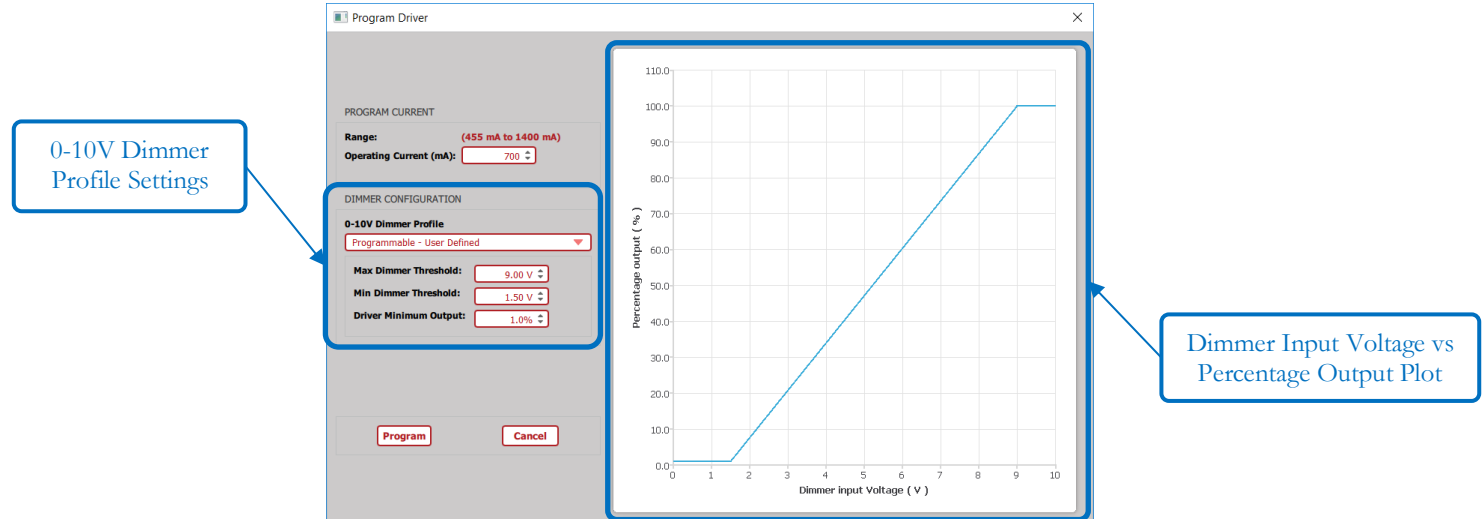
The **Program Driver** dialog box contains the following sections:

- RANGE:**
 - ☒ **High (263 to 345 V) (375 to 750 mA)**
 - ☐ **Low (137 to 180 V) (525 to 1050 mA)**
 - Change Range** button
- NTC FUNCTIONALITY SETTINGS:**
 - External NTC:** **Enabled no Flash** (dropdown menu)
 - Recovery (ohms):** 9123 (spin box)
 - Top Trigger (ohms):** 5678 (spin box)
 - Bot Trigger (ohms):** 1234 (spin box)
 - Minimum NTC Throttle (%):** 12 (spin box)
- PROGRAM CURRENT:**
 - Range:** **High (263 to 345 V) (375 to 750 mA)**
 - Operating Current :** 567 (spin box)
 - Program** button
 - Cancel** button

Press to Send Entered Attributes to Connected Driver.

- **Range:** Alters the output voltage range on dual range drivers
- **NTC Functionality Settings:** Allows the external NTC function to be enabled or disabled as well as to modify the transfer function points for drivers with optional external NTC capabilities. See [Section 5.1](#) for more details on configuring the external NTC functionality.
- **Program Current:** Displays the available output current minimum and maximum values for a particular voltage range and allows the user to specify an operating current within those limits.
- **Dimmer Configuration:** Allows for adjustments to the Dimming profiles that the driver will follow. Configuration of the dimming profile can be made by selecting a predefined dimmer profile or by specifying values for 0-10V or TRIAC/EVL dimming profiles.

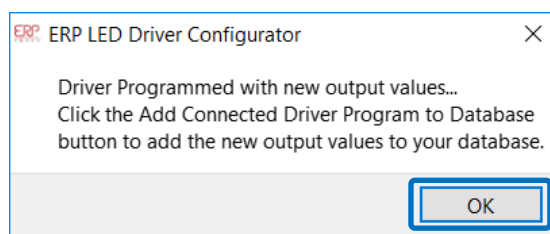
Dimmer Configuration: 0-10V Dimmer Profile: Allows the user to select the desired 0-10V dimming profile that the driver will follow. Users may select from one of several predefined dimming profiles or enter specific User Defined values. The right of the dialog box will display a **Dimmer Input Voltage vs Percentage Output Plot** which is a visual representation of the 0-10V settings that have been selected or entered.



Dimmer Configuration: TRIAC/ELV Dimmer Model: Allows the user to select the desired TRIAC/ELV dimming profile that the driver will follow. Users may select from one of several predefined dimming profiles or enter specific User Defined values. The right of the dialog box will show a visual representation of the dimming settings.



After entering in the new attributes to be sent to the driver, press the **Program** button. A confirmation window will appear, confirming that the new settings have been sent, and stored in the driver.



LED DRIVER DETAILS	
Model Number:	PDB260W1050-345ABL8
Operating Current:	567 mA
Voltage Range:	High (263 to 345 V)
Open Circuit Voltage:	400 Vdc
Bar Code:	PA8W1050B25017AS0001
Factory:	ERP, Zhuhai
Date Code:	5017
Firmware Revision:	DR1NTC_B_17_47_10
NTC Function:	Enabled No Flash
NTC Rel:	9123 ohms
NTC Top:	5678 ohms
NTC Bot:	1234 ohms
NTC Min:	12 %

LED DRIVER RUNTIME AND STATISTICS	
Hours of Operation:	3 : 10 (H : M)
AC Power Cycles:	80
Temperature Events:	11
Line Transient Events:	36

After dismissing the confirmation box (**press OK**), the Customer GUI will read back from the driver, further confirming, that the new settings have been saved and stored inside the driver.

Driver Attributes Match Settings
from Program Driver Screen

If desired the new programmed attributes can be added into the internal database for later use, by pressing the **Add Connected Driver Config to Database** button.

OPERATIONS	
Modify Driver Program	
Add Connected Driver Config to Database	
<input type="text"/>	Select File
Upgrade Unit Firmware	
<div> ● Driver Connected Port - COM5 </div>	
Driver Config Added to Database	

A new prompt will appear where the Configuration Description can be entered.

ERP LED Driver Configurator

Description:

Cancel

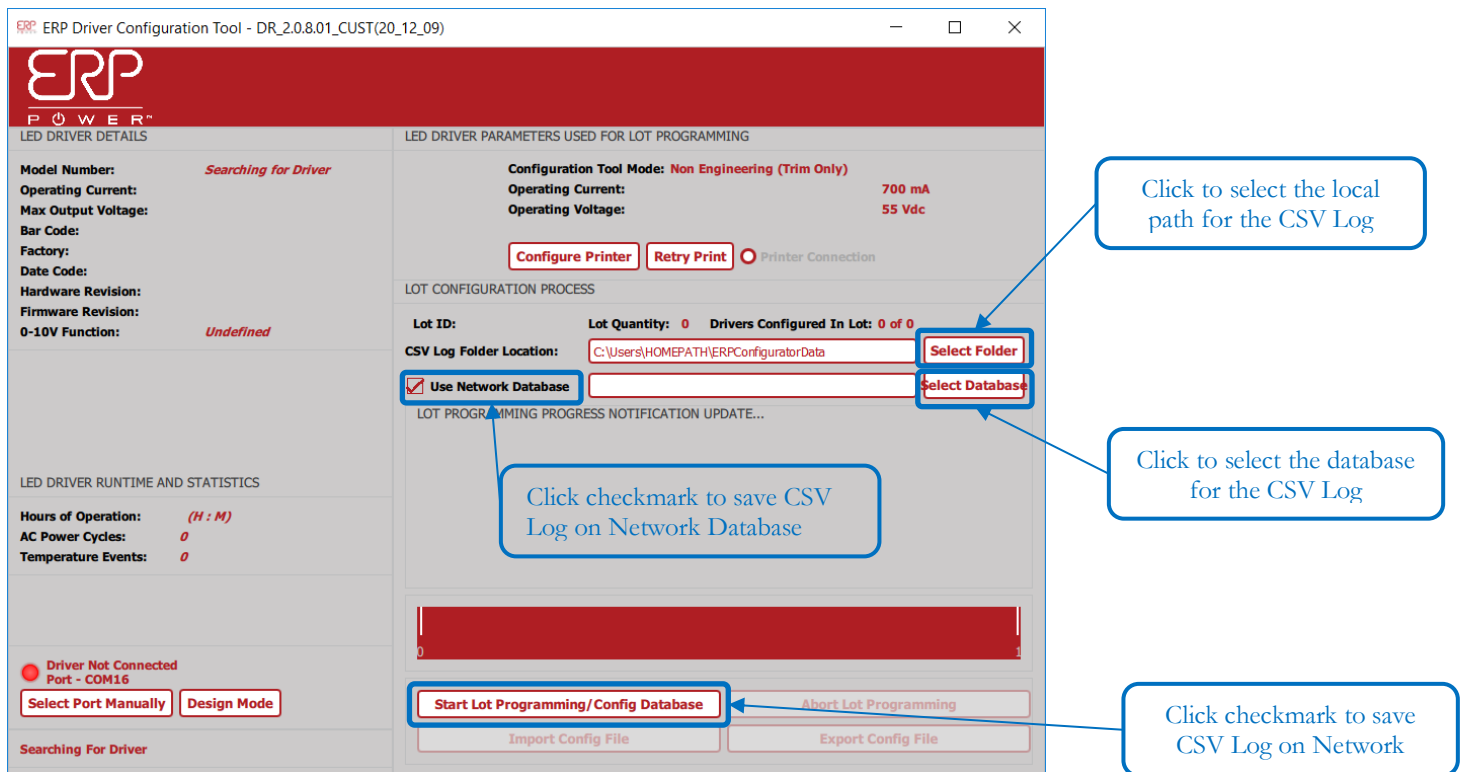
OK

Notification Field, Confirms
Driver Config Has Been Added

5.2. MASS PRODUCTION MODE

The ERP Driver Configuration Tool also allows for a large lot of drivers to be configured for a production mode environment. This mode of configuration makes use of the internal database within the Configuration Tool to program and configure a large quantity of drivers based upon predefined configurations. These configurations may be previously imported into the Configuration Tool or added using the **Add Connected Driver Config to Database** button while in **Design Mode**.

The location of the CSV Log that is created when conducting lot programming can be selected by the user or saved to a network database. Press the **Select Folder Button** to choose a local path that the CSV Log saves to. Check the **Use Network Database** box if the CVS Log is to be saved in a database and specify the save location by pressing the **Select Database Button** on the right.



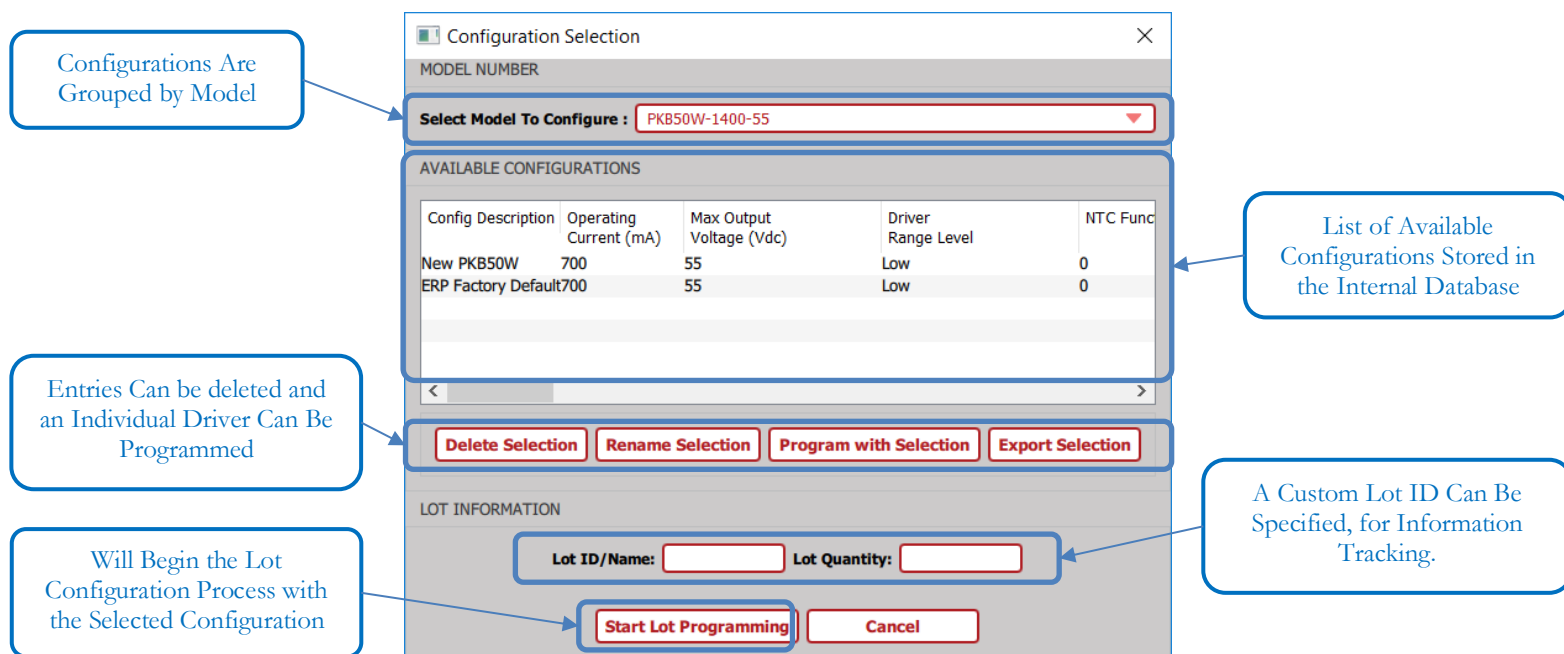
The screenshot shows the ERP Driver Configuration Tool interface. The title bar reads "ERP Driver Configuration Tool - DR_2.0.8.01_CUST(20_12_09)". The interface is divided into several sections:

- LED DRIVER DETAILS:** Includes fields for Model Number, Operating Current, Max Output Voltage, Bar Code, Factory, Date Code, Hardware Revision, Firmware Revision, and 0-10V Function. The status "Searching for Driver" is displayed.
- LED DRIVER PARAMETERS USED FOR LOT PROGRAMMING:** Shows Configuration Tool Mode (Non Engineering (Trim Only)), Operating Current (700 mA), and Operating Voltage (55 Vdc). Buttons for "Configure Printer", "Retry Print", and "Printer Connection" are present.
- LOT CONFIGURATION PROCESS:** Includes Lot ID, Lot Quantity (0), and Drivers Configured In Lot (0 of 0). The CSV Log Folder Location is set to "C:\Users\HOMEPATH\ERPConfiguratorData". Buttons for "Select Folder" and "Select Database" are available.
- LOT PROGRAMMING PROGRESS NOTIFICATION UPDATE...**: A section for progress updates.
- LED DRIVER RUNTIME AND STATISTICS:** Shows Hours of Operation (H : M), AC Power Cycles, and Temperature Events.
- Driver Not Connected:** A red indicator and text "Port - COM16". Buttons for "Select Port Manually" and "Design Mode" are present.
- Buttons at the bottom:** "Start Lot Programming/Config Database", "Abort Lot Programming", "Import Config File", and "Export Config File".

Annotations with arrows point to specific elements:

- "Click to select the local path for the CSV Log" points to the "Select Folder" button.
- "Click to select the database for the CSV Log" points to the "Select Database" button.
- "Click checkmark to save CSV Log on Network Database" points to the "Use Network Database" checkbox.
- "Click checkmark to save CSV Log on Network" points to the "Start Lot Programming/Config Database" button.

To launch the production mode, press the **Start Lot Configuration** button. Below is a breakdown of the options available in production mode.



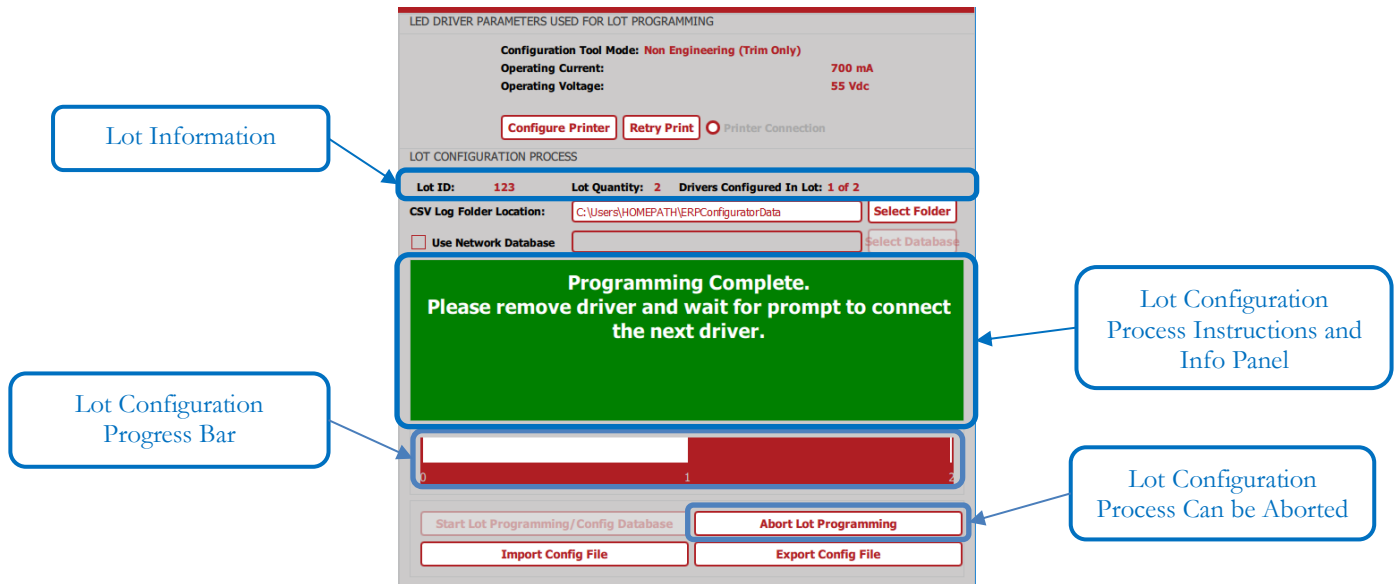
The screenshot shows the 'Configuration Selection' dialog box. It includes a 'MODEL NUMBER' section with a dropdown menu set to 'PKB50W-1400-55'. Below this is a table of 'AVAILABLE CONFIGURATIONS' with columns for Config Description, Operating Current (mA), Max Output Voltage (Vdc), Driver Range Level, and NTC Function. The table lists 'New PKB50W' and 'ERP Factory Default700'. At the bottom, there is a 'LOT INFORMATION' section with input fields for 'Lot ID/Name' and 'Lot Quantity', and buttons for 'Start Lot Programming' and 'Cancel'. Callouts provide additional context: 'Configurations Are Grouped by Model' points to the model dropdown; 'List of Available Configurations Stored in the Internal Database' points to the configuration table; 'Entries Can be deleted and an Individual Driver Can Be Programmed' points to the 'Delete Selection' and 'Rename Selection' buttons; 'A Custom Lot ID Can Be Specified, for Information Tracking.' points to the 'Lot ID/Name' field; and 'Will Begin the Lot Configuration Process with the Selected Configuration' points to the 'Start Lot Programming' button.

Config Description	Operating Current (mA)	Max Output Voltage (Vdc)	Driver Range Level	NTC Func
New PKB50W	700	55	Low	0
ERP Factory Default700	700	55	Low	0

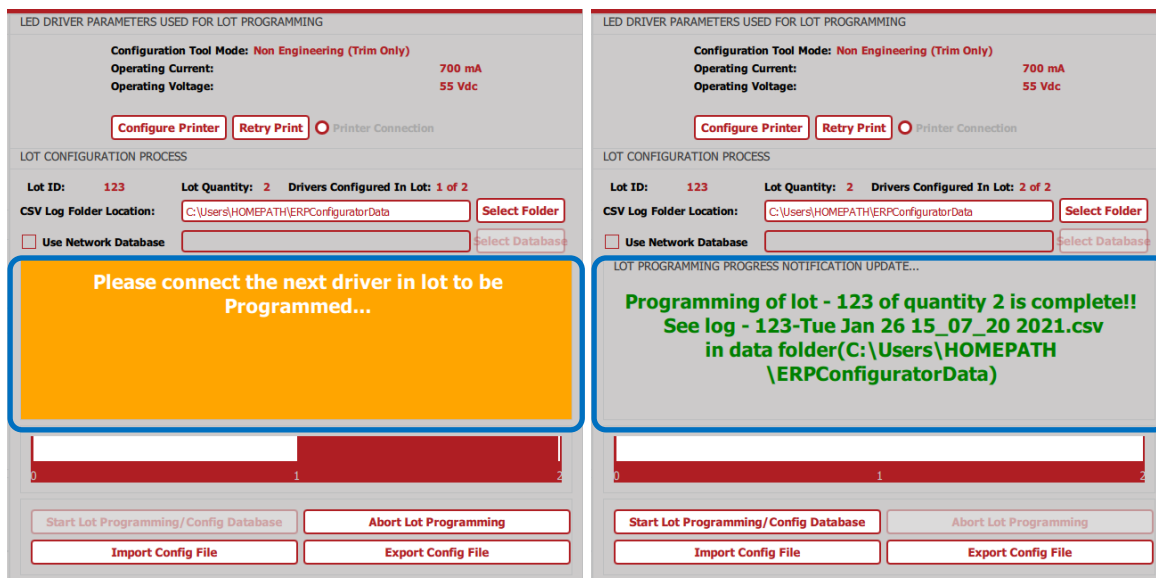
(**Note:** The **Delete Selection** and **Rename Selection** buttons will not be available when operating in Production Mode.)

After selecting the relevant model and the desired configuration from the list, the **Lot ID/Name** and **Lot Quantity** can be entered. **Lot ID** is used for information tracking; after completing a lot, a .csv file is generated with the **Lot ID**, recording the number of drivers programmed, the driver's serial numbers, and the configuration profile that was used. **Lot Quantities** can be specified in any number between 1 to 64,000. Press the **Start Config** button to begin the Lot Configuration Process.

The **Lot Configuration Process** keeps track of the number of drivers programmed. The **Configuration Progress Bar** displays how many drivers are left to be programmed.



A visual and audio prompt indicates when a driver has been successfully programmed and when it is time to connect the next driver. A notification is given when the Lot Configuration process is complete, and the user is notified of the location that the .csv file was saved to.

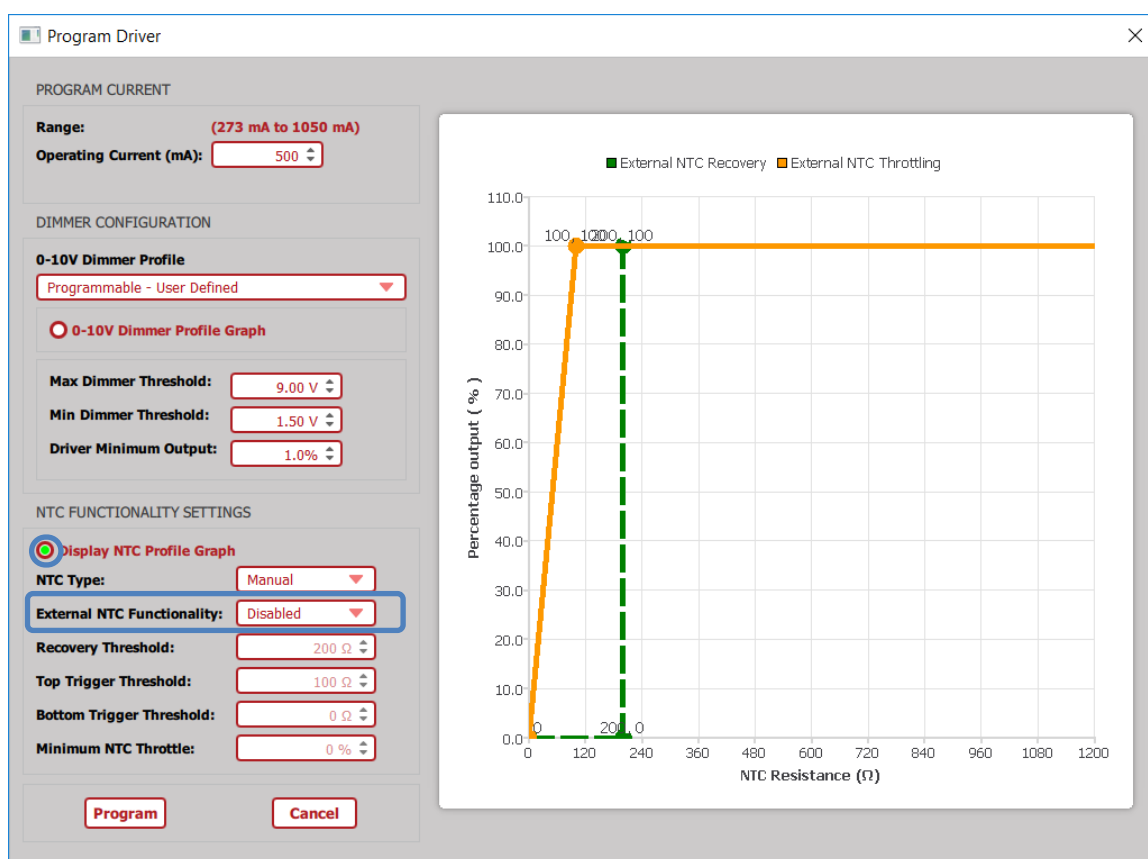


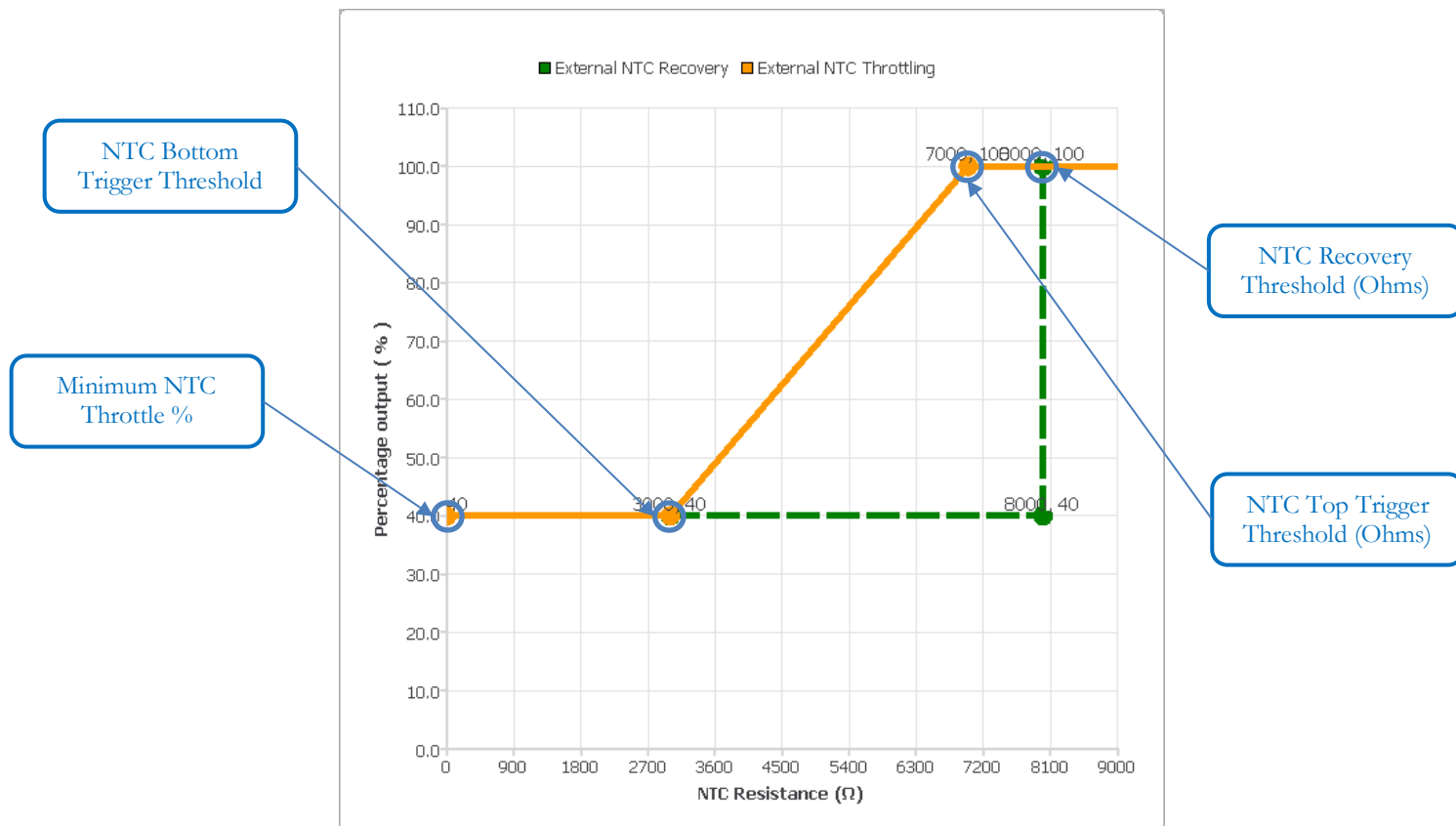
(OPTIONAL) EXTERNAL NTC PROTECTION

6.1. OVERVIEW

Select Draco models have the capability of accepting inputs, from an externally located negative temperature coefficient (NTC) thermistor, to use as an extra level of protection for the LED fixture. The NTC inputs are used to signal to the driver that the location being monitored is too hot; thus, the output current must be throttled down. The transfer function for output current vs. NTC resistance is entirely user configurable.

See below graph, showing Program Driver Window with the linear shape of the transfer function and the NTC Functionality Settings below. User configurable attributes that define the transfer function are highlighted on the following page.





(Note: The “NTC Resistance vs Percent Output” graph displays typical values for NTC Profile.)

From the graph, the configurable parameters are:

- **NTC Recovery Threshold:** In ohms, this specifies the point at which normal operation will be restored.
- **NTC Top Trigger Threshold:** In ohms, this specifies when output current throttling will begin.
- **NTC Bottom Trigger Threshold:** In ohms, this specifies the resistance when the minimum specified output current is reached. Used to define the slope of the transfer function curve.
- **Minimum NTC Throttle:** In percentage of output current, specifies the lowest level, the NTC function will throttle down to.

Note the External NTC Throttling line on the graph (The solid yellow line which travels from right to left). Once the **NTC Top Trigger Threshold** has been crossed, the output current will begin to decrease to the **Minimum NTC Throttle Percentage** and will be held there.

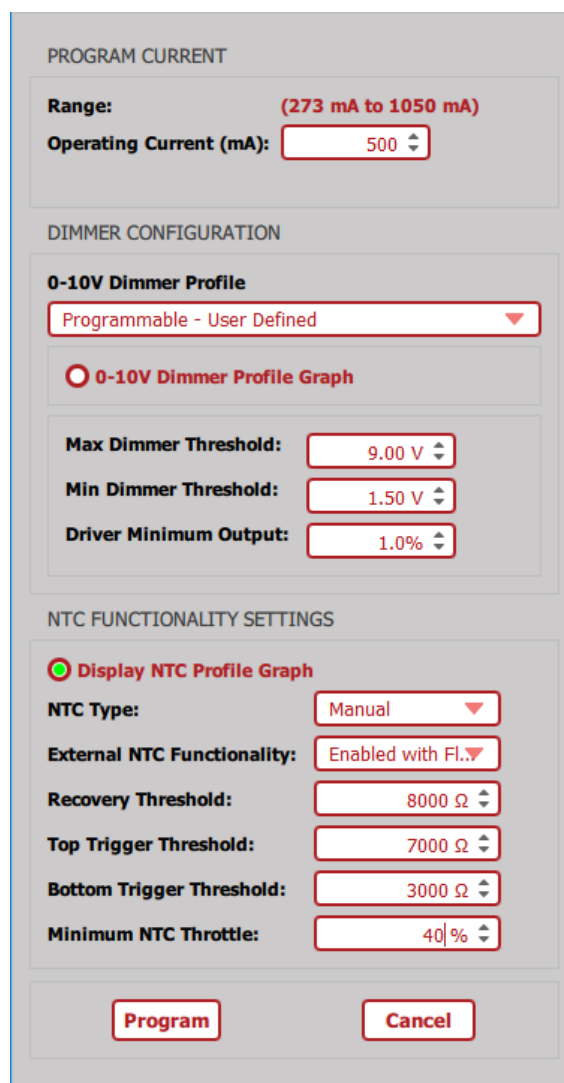
Note the External NTC Recovery line on the graph (The dashed green line which travels from left to right). The output will be held down at the **Minimum NTC Throttle Percentage** until the NTC has had a chance to reach the **NTC Recovery Threshold**. The output will be restored once the NTC Recovery Threshold has been reached.

This hysteresis ensures, that normal operation will only be restored, after the NTC has had adequate time to cool off.

6.2. CONFIGURING THE EXTERNAL NTC FUNCTIONALITY

To configure the External NTC Functionality, repeat the same steps as in the **Trimming a Driver** section. Simply open the ERP Driver Configuration Tool, connect a Draco driver which supports the External NTC function, and click the **Modify Driver Program** button. If necessary, select the **Display NTC Profile Graph** from the Program Driver window.

The following NTC settings, based on the transfer function graph in **Section 6.1**, can be configured from the **Program Driver** window:



The screenshot shows the 'PROGRAM CURRENT' and 'DIMMER CONFIGURATION' sections. The 'PROGRAM CURRENT' section has a 'Range' of '(273 mA to 1050 mA)' and an 'Operating Current (mA)' of '500'. The 'DIMMER CONFIGURATION' section has a '0-10V Dimmer Profile' set to 'Programmable - User Defined' and a '0-10V Dimmer Profile Graph' button. Below this are 'Max Dimmer Threshold' (9.00 V), 'Min Dimmer Threshold' (1.50 V), and 'Driver Minimum Output' (1.0%). The 'NTC FUNCTIONALITY SETTINGS' section has a 'Display NTC Profile Graph' button (checked), 'NTC Type' set to 'Manual', 'External NTC Functionality' set to 'Enabled with Fl.', 'Recovery Threshold' (8000 Ω), 'Top Trigger Threshold' (7000 Ω), 'Bottom Trigger Threshold' (3000 Ω), and 'Minimum NTC Throttle' (40%). At the bottom are 'Program' and 'Cancel' buttons.

- **NTC Type:** Used to select between Manual mode or other predefined profiles.
- **External NTC:** Can be set to:
 - **Disabled:** Disables all NTC related functions.
 - **Enabled no Flash:** Enables the NTC Functionality as defined by the transfer function.
 - **Enabled with Flash:** Enables the NTC functionality and will blink the fixture LEDs up and down every few minutes if the NTC Top Trigger Threshold has been crossed, in addition to following the NTC Transfer Function.
- **Recovery:** Specifies the **NTC Recovery Threshold** in ohms. Acceptable values range from 200-15,000 ohms. **Recovery must be greater in value than Top Trigger or Bot Trigger.**
- **Top Trigger:** Specifies the **NTC Top Trigger Threshold** in ohms. Acceptable values range from 200-15,000 ohms. **Top Trigger must be greater than or equal to in value as Bot Trigger.**
- **Bot Trigger:** Specifies the **NTC Bottom Trigger Threshold** in ohms. Acceptable values range from 200-15,000 ohms.
- **Minimum NTC Throttle:** Specifies the bottom floor the NTC Function will dim down to. Acceptable values range from 1-100 %.

Once the desired values have been entered, simply press the **Program** button to configure the connected driver. Afterwards, the selected values can be added into the ERP Driver Configuration Tool's internal database, using the **Add Connected Driver Config to Database** button.