Tuner4TRONIC® Production

Operating Manual

Version 3.15
2020-12-07

Light is OSRAM

Please note:
All information in this guide has been prepared with great care. OSRAM, however, does not accept liability for possible errors, changes and/or omissions. Please check www.osram.com or contact your sales partner for an updated copy of this guide. This technical application guide is for information purposes only and aims to support you in tackling the challenges and taking full advantage of all opportunities the technology has to offer. Please note that this guide is based on own measurements, tests, specific parameters and assumptions. Individual applications may not be covered and need different handling. Responsibility and testing obligations remain with the luminaire manufacturer/OEM/application planner.

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About Tuner4TRONIC

Purpose and Application

The Tuner4TRONIC (T4T) software suite allows luminaire manufacturers to program OSRAM drivers via DALI and/or NFC in a simple, fast, reliable and cost-effective way, speeding up the production process.
Click here to watch a short video that gives a great overview about Tuner4TRONIC.

This software for Windows consists of four different modules according to the environment of use:

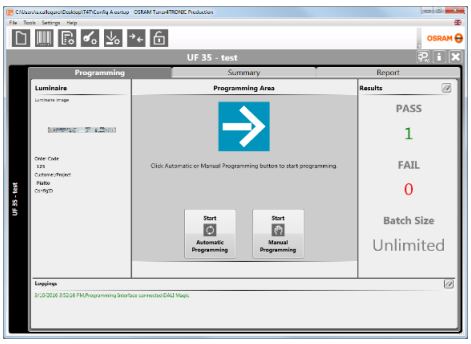
Tuner4TRONIC Development

Luminaire designers can configure LED drivers by setting parameters such as output current, dimming levels, constant lumen output, operating modes and much more. Thanks to its multi-level password system, Configuration Lock protects LED drivers against unauthorized changes while service technicians can still be granted access rights for selected features.
Once the configuration has been completed, the settings are exported as an encrypted read-only production file and transmitted to the production line.



Tuner4TRONIC Production

Factory workers can easily load encrypted production files in order to start automatic programming for the fast mass production of LED drivers. Changes to the LED driver configuration are not possible during this stage. Provides a multilingual user interface.



Tuner4TRONIC Machine

The DLL and command line tools enable to integrate OSRAM LED driver programming into automatic programming stations in the production line.



T4T API

While the Development and Production versions provide the users an intuitive graphical interface, the API („Application Programming Interface“) provides software developers a collection of functions and tools to create luminaire configurations automatically. Typically, the API is used to create luminaire files when a new order is available in the ERP system. The API is based on modern standards (REST) and conventions, comes with a comprehensive documentation and must be integrated into your system by a software developer (OSRAM does not provide ERP system integrations).

Tuner4TRONIC Field

T4T-Field is an app for smartphones that can program OSRAM outdoor OT 1DIM and OT 4DIM as well as indoor OTi DALI Compact LED drivers via NFC - wireless and without mains-voltage. The app can change the light output and the dimming levels of the driver. In addition, a driver configuration can be copied to another driver in a breeze.

Click here to download the app from Google Play (Android version)

Click here to download the app from the App Store (iPhone version)

This manual does not focus on the T4T Field App. Click here to download the dedicated manual for T4T-Field.



Files Types

Tuner4TRONIC Development uses different file types:

- Tuner4TRONIC luminaire project file = .osrtul
- Tuner4TRONIC production file = .osrtup
- Driver description file = .osrtud

Workflow between the different T4T Versions

The luminaire product manager/designer creates his desired configuration (e.g. setting the operating current, CLO and dimming) using T4T Development. He saves his project as an *.osrtul file. It is possible to test the configuration by programming individual drivers. When the configuration is finished and ready for mass production, a read-only *.osrtup production file is exported and sent to the assembly line.

At the assembly line, the production file is loaded using T4T Production and the mass programming can start. Alternatively, T4T Machine (dll and command line tools) can be used to integrate with automatic programming and testing stations.
Our optional API allows to create luminaire and production files directly from an ERP system removing the need to create those files manually.



Installation

System Requirements

The minimum system requirements for the T4T are:

- A Programming Interface such as:
  - OSRAM DALI magic
  - NFC programmer (FEIG reader)
  - Optotronic OT Programmer
- A PC or notebook with the following specification:
  - Pentium M processor
  - 1 GB main memory
  - Windows 7 (both 32 or 64-bit), Window 8 / 8.1 (both 32 or 64-bit), or Windows 10 (both 32 or 64-bit) latest SP installed
  - 100 MB hard disk memory
  - Monitor with a resolution of 1024x768 pixels, the recommended zoom factor is 100%
  - one free USB 2.0 port for Programming Interface

Software Installation

NOTE: Always read the "Release Notes" in the zip file before installing the SW.
To install the file you must have Windows administrator rights.
Extract the Tuner4TRONIC zip file into your local hard drive and then run "Install T4T.exe" located in that folder. **Running the Installer from inside the zip file will cause a faulty installation!**
By default, both Tuner4TRONIC Development and Tuner4TRONIC Production will be installed, but there is the option to select only one of them.
Tuner4TRONIC Development and Tuner4TRONIC Production can be launched from "Start" => "All Programs" => "OSRAM" => "Tuner4TRONIC" or by double-clicking the desktop icons.

Hardware Installation

To program a luminary containing an OSRAM driver, a programming interface (suitable for the used driver) is needed:

[1]	Driver with DALI interface (multi and/or single programming)	DALI magic	
[2]	Driver with Prog+/Prog- interface (only single programming)	OT Programmer	

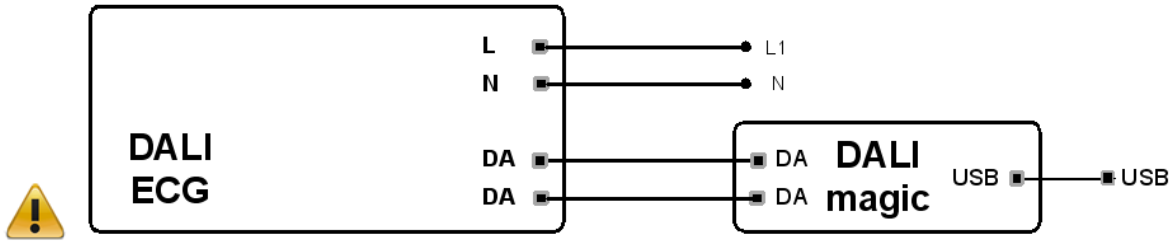
[3]	Driver with NFC interface (only single programming)	FEIG PRH101 FEIG CPR30 FEIG MR102 (using this device a separate antenna is needed e.g. ANT310)	  

The Tuner4TRONICis capable to handle more than one programming interface connected to the same PC (see Programming interfaces chapter)

Preparing a driver with DALI interface for programming

Step	**Activity**
1	Connect DALI magic and PC with the enclosed USB cable.
(2)	Connect the external 6V DC power supply to the DALI magic. The use of the external power supply is mandatory in case of more than 4 drivers connected to the DALI line, anyhow it is strongly recommended to always use the external power supply in order to improve the stability of the DALI communication.
3	Connect the driver to mains and PE if the related terminal is available in the driver.
4	Connect the DALI® terminals of the DALI magic with the DALI® inputs of the driver(s).

POWER ON THE DRIVER

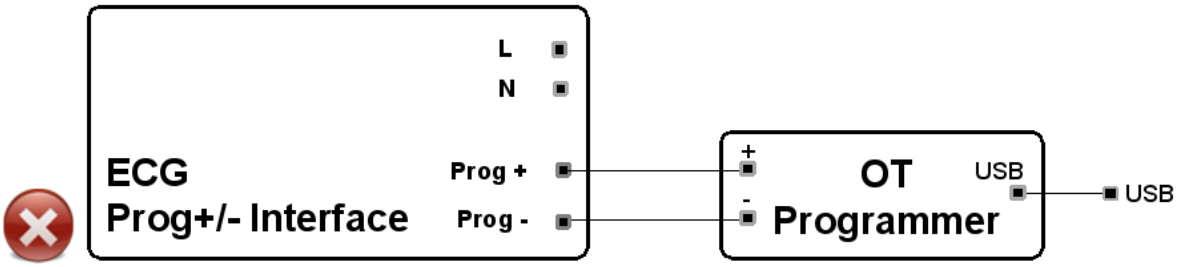


NOTE: most of the DALI LED drivers allow programming when supplied with a low voltage (e.g. 48V) in place of the mains voltage. For further details, please consult the LED driver's datasheets.

Preparing a driver with Prog+/Prog- Interface for programming

Step	Activity
1	Connect OT Programmer and PC with the enclosed USB cable.
2	Connect the +/- terminals of the OT Programmer with the Prog+ / Prog- terminals/cables of the driver(s).

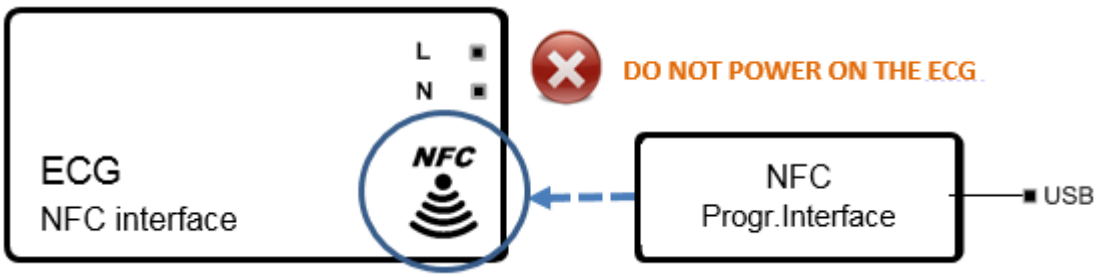
DO NOT POWER ON THE DRIVER !



Important Information:
Programming of the driver via Prog+ and Prog- is NOT allowed when the driver is powered with mains on terminals L/N.

Preparing a driver with NFC- Interface for programming

Step	Activity
1	Connect a Programming Interface FEIG PRH101 or. FEIG CPR30 to the PC with the enclosed USB cable.
2	Put the Programming interface close in contact with the NFC area of the driver (see logo) and hold still both driver and programming interface till the process is completed



Important Information:
Keep the driver powered OFF during programming via NFC unless otherwise indicated in the documentation of the driver.
Keep both Programming interface antenna and driver with NFC close in contact during the complete programming process.

Software Updates

Please check regularly through T4T-Development or through the internet web site: www.osram.com/t4t whether there is an updated version available.

Compatibility with previous versions of Tuner4TRONIC

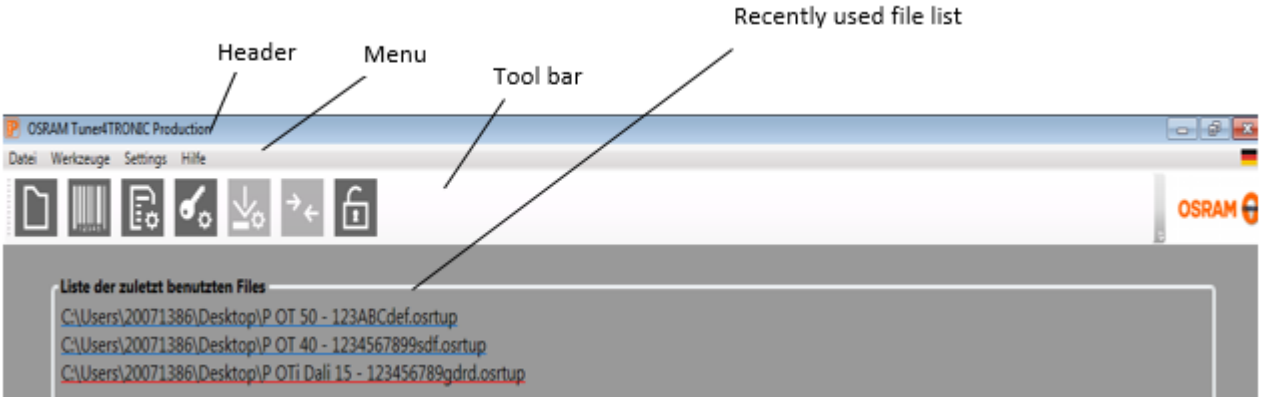
IMPORTANT INFORMATION:

Production files (.osrtup) generated with the previous versions from 1.x. to 2.1 cannot be used with Tuner4TRONIC 3.3 anymore.

Production files (.osrtup) generated with the previous versions from 2.4 to 3.1 can be opened directly with Tuner4TRONIC 3.3.
In addition, they can be converted to be used in 3.3 by using the conversion utility available in the Tools menu of Tuner4TRONIC Development: "Upgrade Production Files".

User interface

Basic Layout



Menu Bar

The basic functions are available via the menu bar. Submenus or dialogs are opened by clicking an entry in the menu bar. The menu contains the following elements, each with the listed sub items.

File

Open	Loads an existing Luminaire Production File (.osrtup). This file is previously created with the Tuner4TRONIC® Development.
Recently Used Files	List of recently used files.
Load Production file using a barcode scanner	Loads a Luminaire Production File using the Barcode reader
Close	Closes the software.

Settings

Report	Enables the selection of the file title, folder path, retention time
Label Printing	Enables the selection of label printing feature, the spooling folder path and the label definition file path.
Administrative PIN Settings	Allows to Set\Change\Remove the PIN for the Administrative Mode. Available only in Administrative Mode.
Programming Setup	Allows to change the Programming settings. Available only in Administrative Mode, if left unlocked in Tuner4TRONIC.
Programming Interfaces	Visualize, the connected programming interface(s) and enables the selection of the default one (for each types).
Programming sound	Enable\Disable sound on programming. Available only in Administrative Mode, or if left unlocked in Tuner4TRONIC. Generates a sound like a short beep every time a luminaire is programmed successfully and a long beep in case of failed programming.

Tools

Compare	Compare actual configuration with the connected luminaire.

Help

Help	Opens the User's guide
Info	Displays "About" "EULA" and "Release Notes" information and allows the creation of the diagnosis file

Flag Icon
Allows the user to select the GUI language (if other languages than English are available).

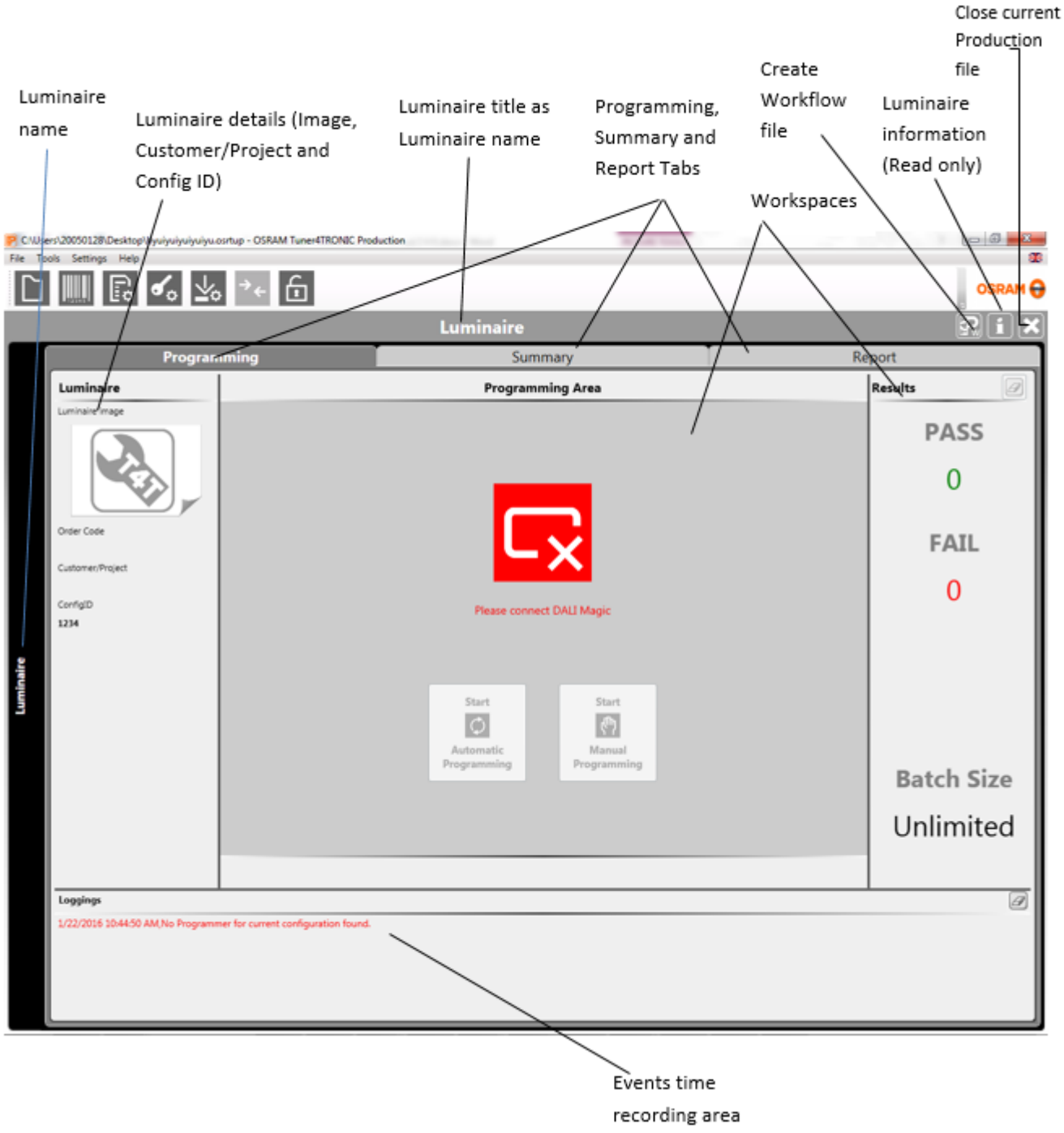
Toolbar

The toolbar provides instant access to the most important features.

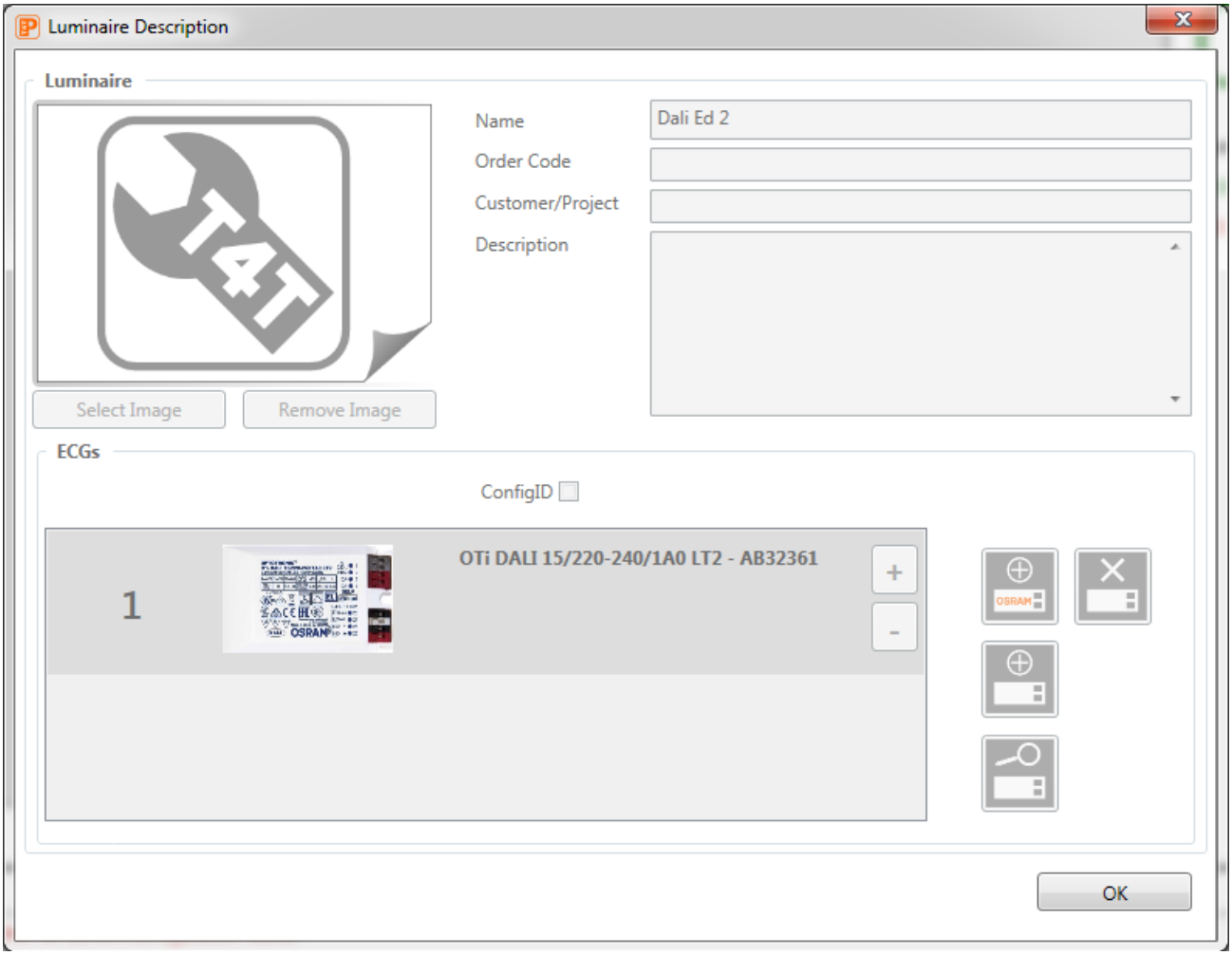
	Open	Load the Luminaire Production File.
	Load Production file using a barcode scanner	Load the Luminaire Production File using a barcode reader
	Report Settings	Enables the selection of the file title/path, retention period.
	Administrative PIN Settings	Allows to Set\Change\Remove the PIN for the Administrative Mode. Available only in Administrative Mode.
	Programming Setup	Allows the user to change the Programming settings. Available only in Administrative Mode.
	Compare	Compare actual configuration with the connected luminaire.
	Administrative Mode Status	Enter/Exit Administrative Mode. Open lock means Administrative Mode activated.

In Admin Mode, all toolbar icons (except the Administrative Mode Status) will be disabled:



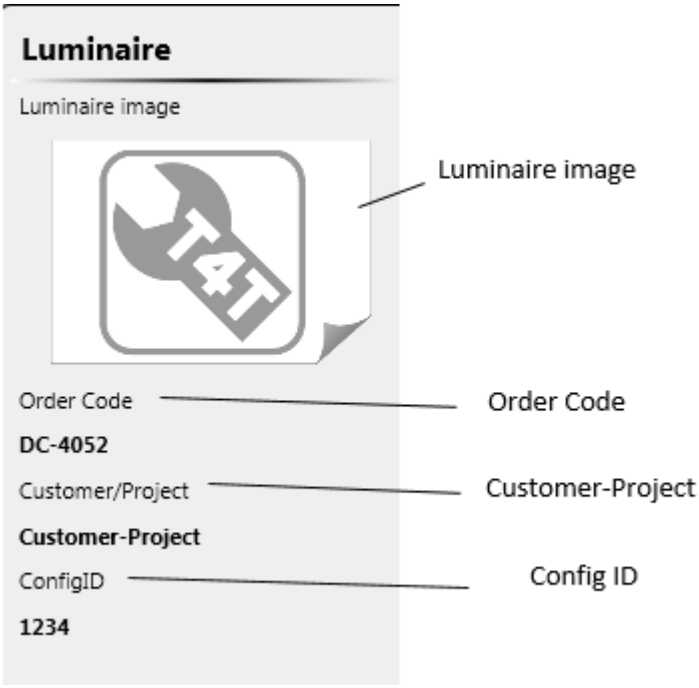


Luminaire info: On click of the  icon a non-editable dialog as below, with the details of the luminaire is displayed.


Luminaire Description
Luminaire
Name
Dali Ed 2
Order Code
Customer/Project
Description
Select Image
Remove Image
ECGs
ConfigID
1
OTi DALI 15/220-240/1A0 LT2 - AB32361
OK

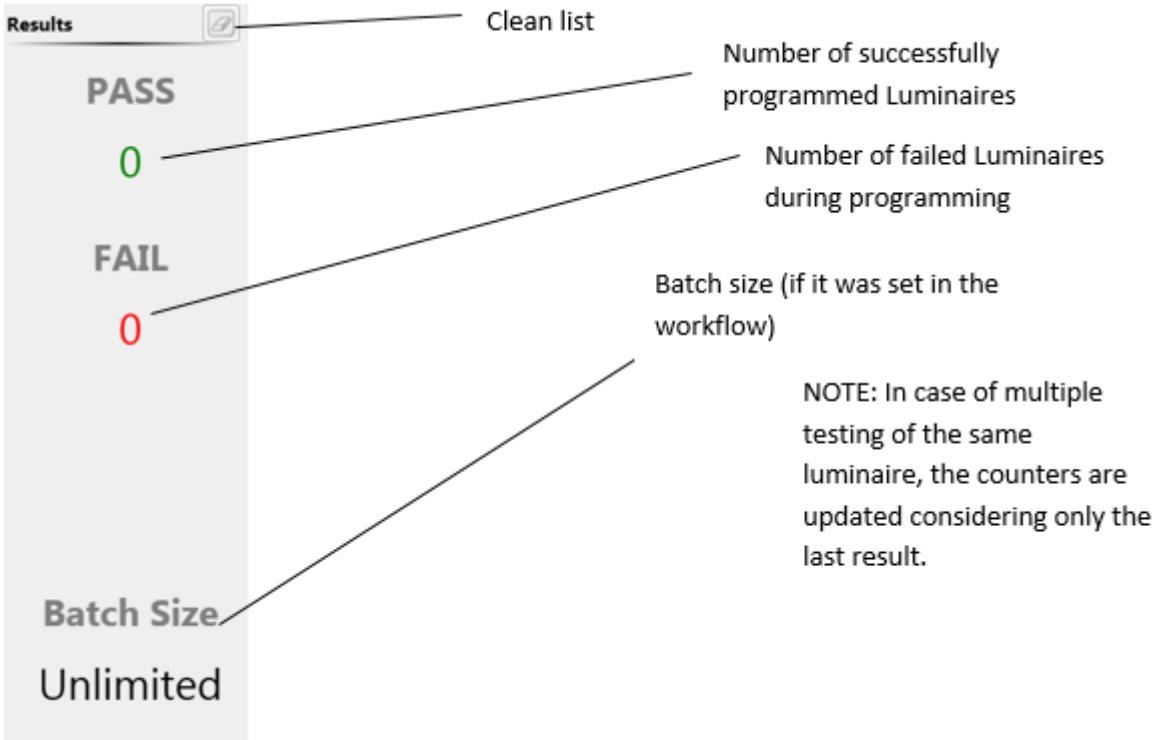
Workspaces

Luminaire Area



It has the Luminaire image, Order Code, Customer/Project and Config ID details.

Results Area

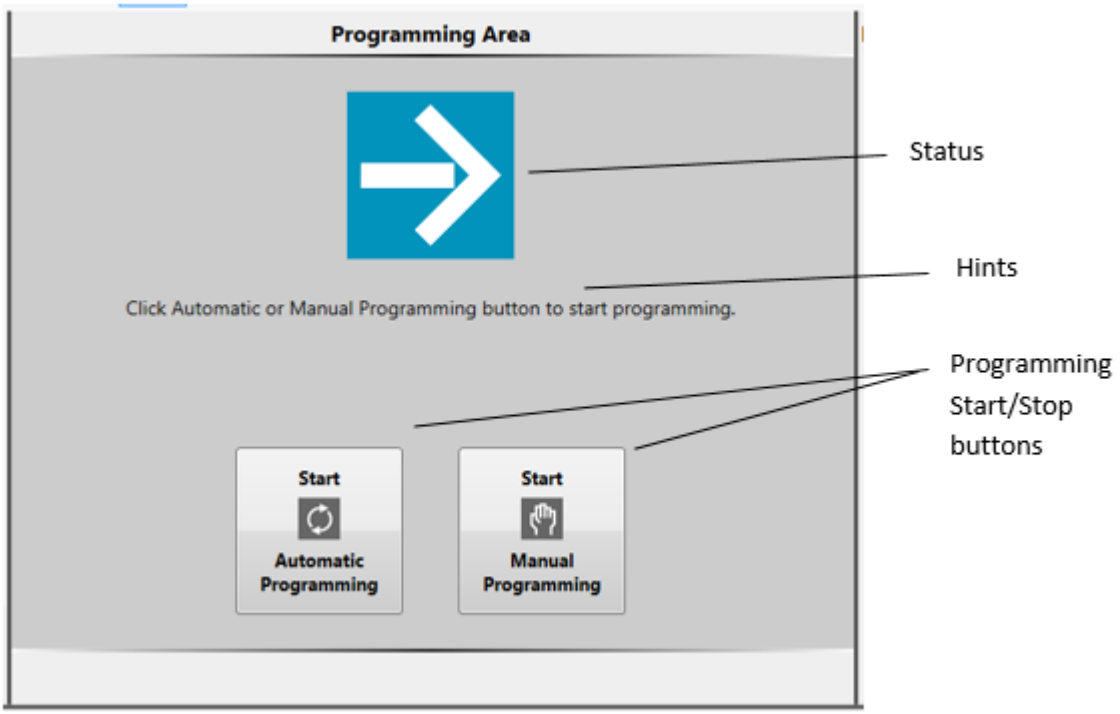


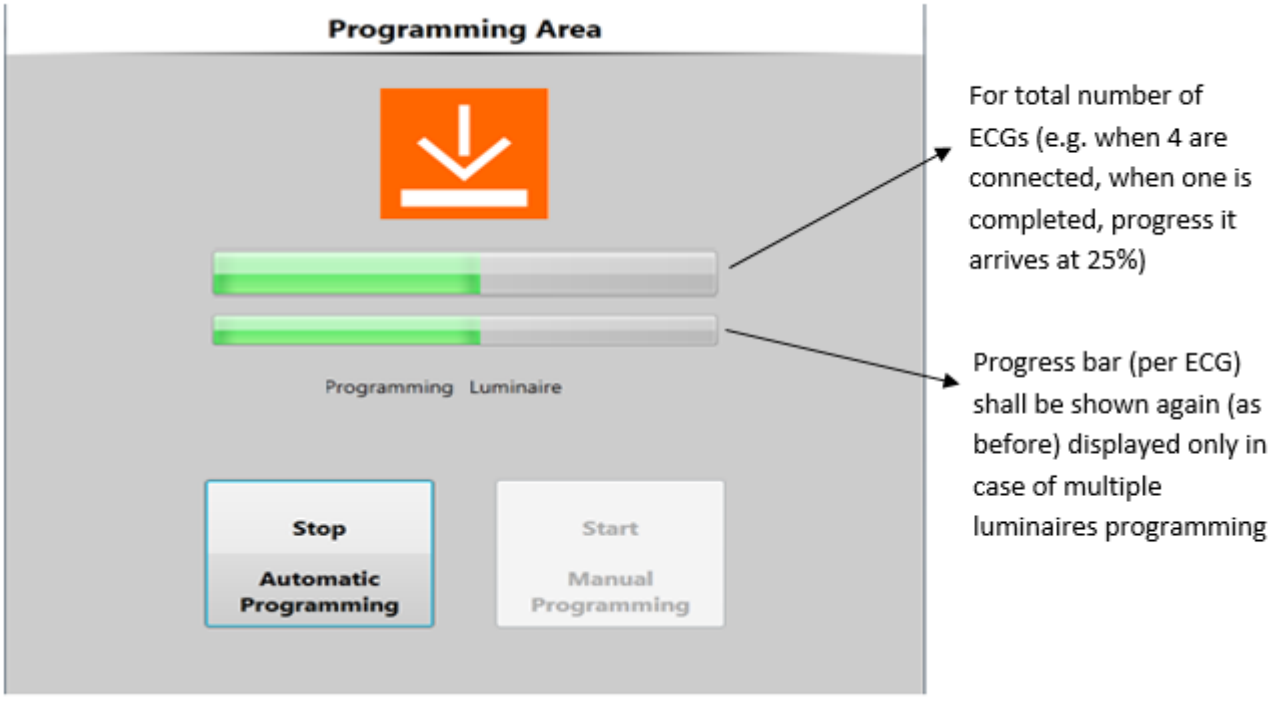
When opening a Production File, Batch Size is set to "unlimited" if not available yet, otherwise previous values are retained

Loggings Area



Programming Area





Progress bar (per driver) shall be shown again (as before) displayed only in case of multiple luminaires programming

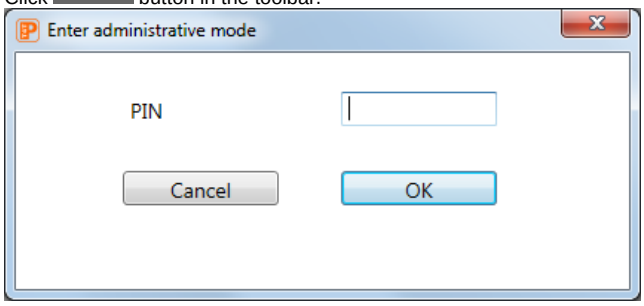
For total number of drivers (e.g. when 4 are connected, when one is completed, progress it arrives at 25%)

Possible status indicators:

	Production file not loaded	Load a production file to start (File --> Open).
	Waiting for Luminaire	Connect a Luminaire to begin/continue programming.
	Programming in progress	Do not remove the connected Luminaire(s) until programming process is completed.
	PASS	Programming process has completed successfully. Remove Luminaire(s).
	FAIL	Programming process has stopped by user or due to errors. Fix the problem then start programming again. Check possible messages on screen for further details.
	Missing programming interface	Connect the programming interface to the computer (check Settings --> Programming interfaces for details).

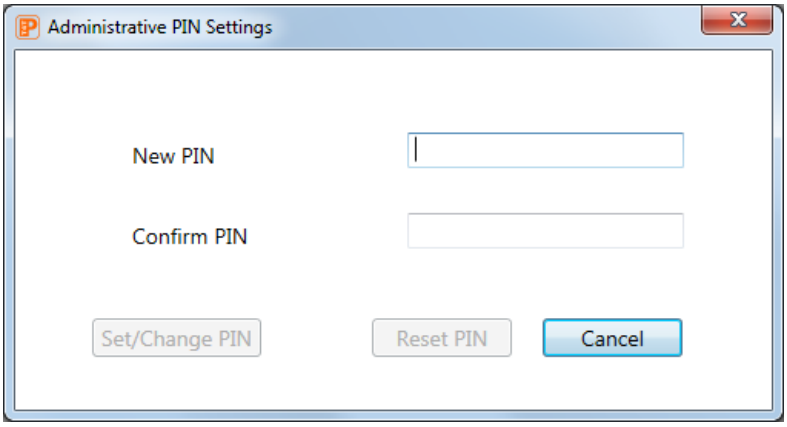
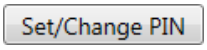
General Operations

Enter Administrative Mode

Step	Activity
1	Click  button in the toolbar. 
2	Enter administrative PIN
3	Click OK button to enter in **Administrative Mode**.
4	The icon in the toolbar changes from  to 

Set/Change Administrative PIN

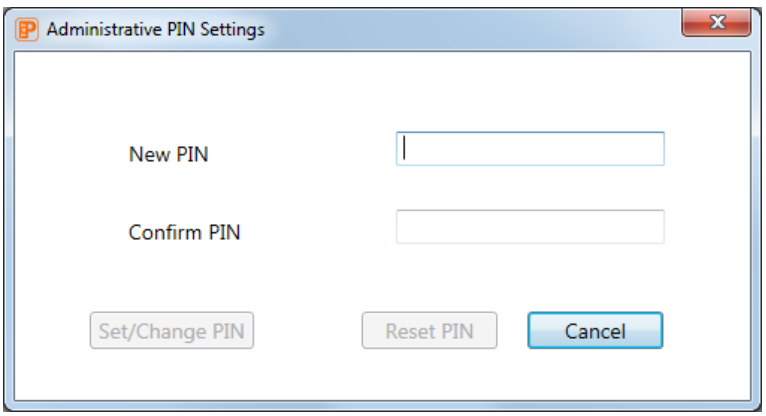
Step	Activity

1	Click  button in the toolbar. 
2	Enter the new PIN in **New PIN** and **Confirm PIN**
3	Click  to set the new PIN.

Exit Administrative Mode

Step	Activity
1	Click  button in the toolbar.
2	The icon in the toolbar changes from  to 

Reset Administrative PIN

Step	Activity
1	Click  button in the toolbar. 

2	Click Reset PIN to remove the PIN

Lost of Administrative PIN

There is no way to recover the Administrative PIN if lost. The recover from this situation it is needed to uninstall the Tuner4TRONIC Production and then install it again

Open Luminaire Production File

Step	Activity
1	Click  button in the toolbar.
2	Select the folder which contains the configuration file via the "Look in: "drop-down menu.
3	Open the configuration by double-clicking. The name of the loaded configuration appears in the header of the Tuner4TRONIC®.
4	A window prompts the user to clear PASS/FAIL counters, if the Production file has non-zero values in PASS/FAIL counters. The counters can be reset if they are not zero (only in Administrative mode), else previous values are retained.

Note:
A configuration can also be loaded by double-clicking the file within the Windows Explorer.

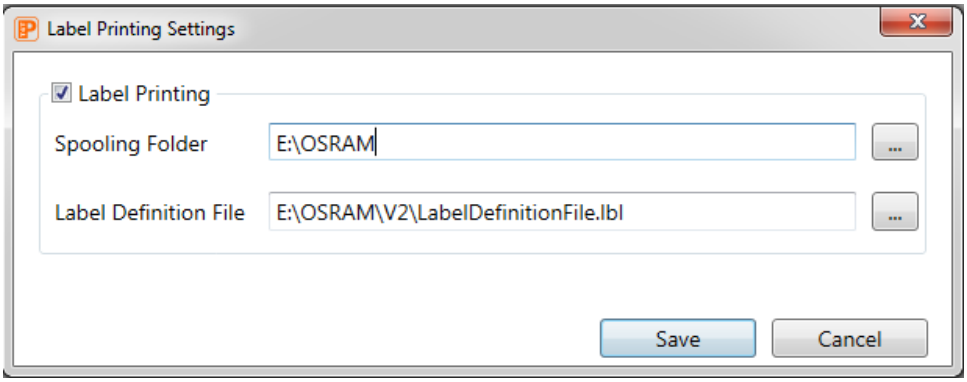
Label Printing

With Tuner4TRONIC Production you can trigger the printing of labels instantly after the programming of each individual driver. This way you could place into the luminaire a label with the luminaire information incl. barcodes or QR codes for later identification.

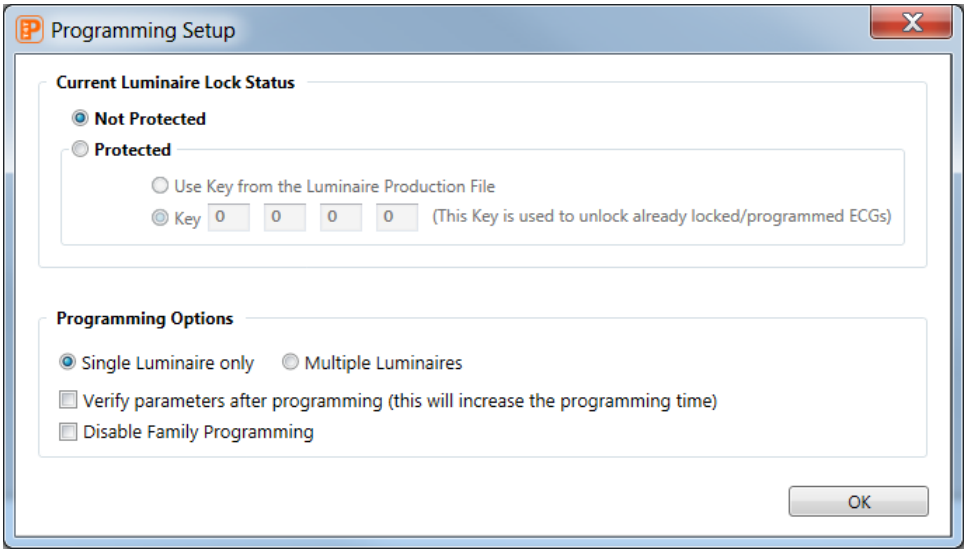
Tuner4TRONIC Production itself does not design nor prints the labels. A third party label printing software (e.g. Nice Label, Bartender. Note: the automation version is required) is needed to create and layout the label design template (incl. barcode or QR code creation) and to start the actual printing.
After activating the label printing functionality in the T4T Production settings (see below), T4T creates after each driver programming a csv file with all the driver parameters that were written by T4T into the driver (all the parameters that can be found in the report e.g. operating current, dimming, luminaire name, luminaire info, individual serial number, GTIN).
The csv file (Output.csv) is saved on the spooling folder specified in the label printing settings after each successfull driver programming.
The third party label printing software must be set up to monitor the spooling folder and whenever a new Output.csv file is created by T4T, the printing software triggers the printing combining the driver data inside the Output.csv file and the predefined label design template.
The Output.csv file hold only the data of the last programmed driver, i.e. after each driver programming, the Output.csv file is overwritten with the data of the latest driver.
In this way, after each driver is programmed with T4T-Production, the corresponding label is printed instantly and fully automatically.

NOTE: see Appendix for the parameter names definition

Label printing settings

Step	Activity
1	Click  button in the Settings menu. 
	Label Printing Checkbox-Enable/Disable label Printing feature.
	Spooling folder - Select the folder to save the generated file. The files thus created will be saved as csv files.
	Label Definition File - Select the label file-(not mandatory)
	Click SAVE to save the settings.

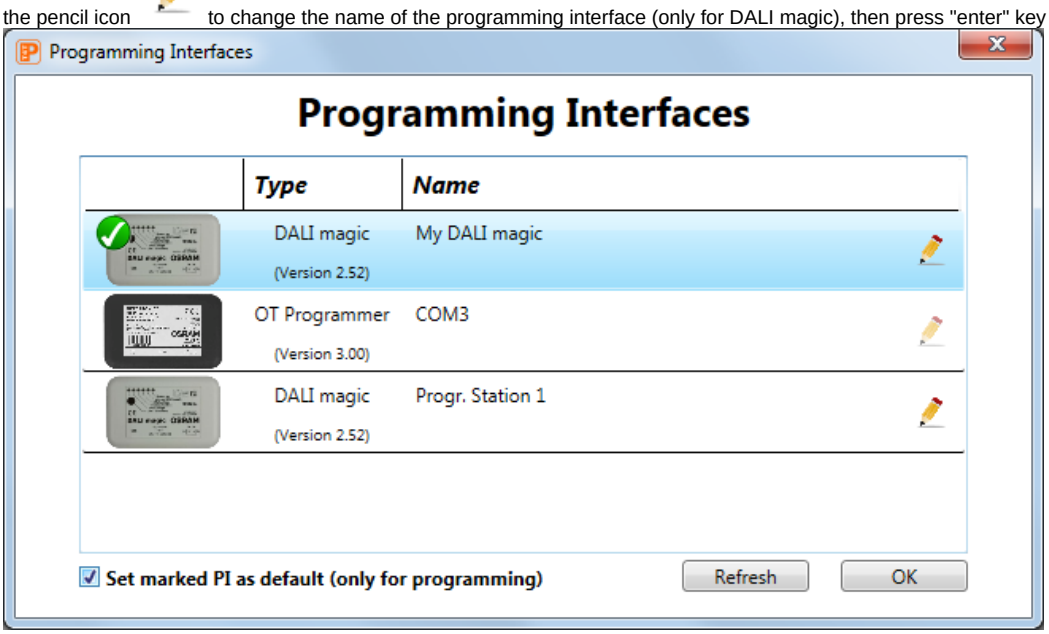
Programming Settings

Step	Activity
1	Click  button in the toolbar. 
2	Set Luminaire Lock Status 1. **Not Protected:** The Luminaire has no OEM/Admin key set. 2. **Protected:** The Luminaire is locked thus it is needed to unlock it before proceeding with the programming: • **Use Key from Luminaire Production File.** Use this option if the needed code to unlock equals the one set in the OEM Key feature. • **Key _ _ _ _.** Input in the field the code to unlock (which can be different from the one in the OEM Key feature). If the OEM Key feature is selected, after programming the Luminaire will be locked with the using the code of the OEM Key feature.
3	Other settings: 1. **Single Luminaire only**: select this option if the programming station processes only one luminaire at a time, this will speed up the programming (less time to detect the luminaire). 2. **Multiple Luminaires**: select this option if the programming station processes more than one DALI luminaire at a time (automatic sequential programming); DALI addressing is performed before programming, then after programming is completed all short addresses are cleared. 3. **Verify parameters after programming:** after programming**,** the configuration is read back and compared with the one just programmed. This slows down the overall programming speed. 4. **Disable Family Programming:** The term "Family Programming" refers to the capability of T4T to be able to program LED drivers within the same or later generation of one product family using the same production file, thus simplifying the production workflow. A product family is defined as a group of related LED driver models of the same target application and similar physical characteristics, but can differ in the name, firmware version, current and/or power. Generations typically differ in the set of included features. Family Programming will fail when the capability of the target driver are not sufficient for the configuration defined in the production file. For example, if a driver supports only 1A, but the original configuration has selected 1,2A then the program must (and will) fail. Moreover, Family Programming only works forward (e.g. from a G2 device to a G3 device), not backward (e.g. from a G2 device to a G1 device). The reason is that later generations introduce new features that may not be available in the older generation. Therefore the usage of a production file created for a newer generation for programming of an old driver is not possible. When devices of different generations are mixed in the production, the recommended usage is to create a projects / production files based on the older devices of a family. When newer features shall be used, a new production file has to be created and only the newer drivers can be used. Family programming was introduced to Tuner4TRONIC in version 3.3. By default, family programming is turned on. Turning off this option means that T4T will only program the exactly specified driver model (i. e. only drivers with the same name and firmware version will be programmed). In T4T-Production, the Family Programming can be disabled in the Programming Setup. A list of all supported and unsupported drivers of family programming is provided at the Appendix 1 of the T4T-Development user manual.

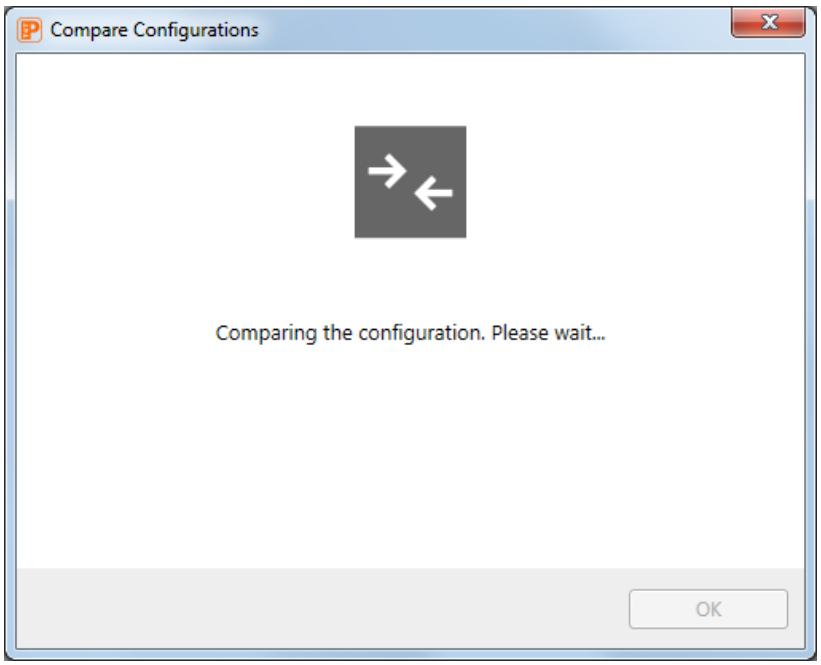
4	Click OK to save the programming settings.

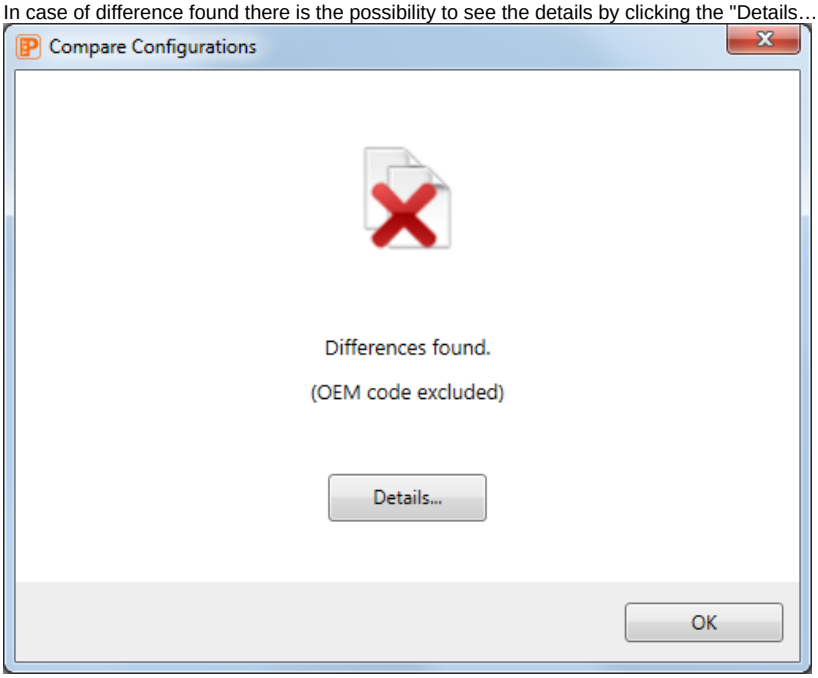
Set the Programming Interface

Scope: This dialog shows all current connected driver programmer to the PC and allows each type to define the default one for programming. Click on the pencil icon  to change the name of the programming interface (only for DALI magic), then press "enter" key of the keyboard.

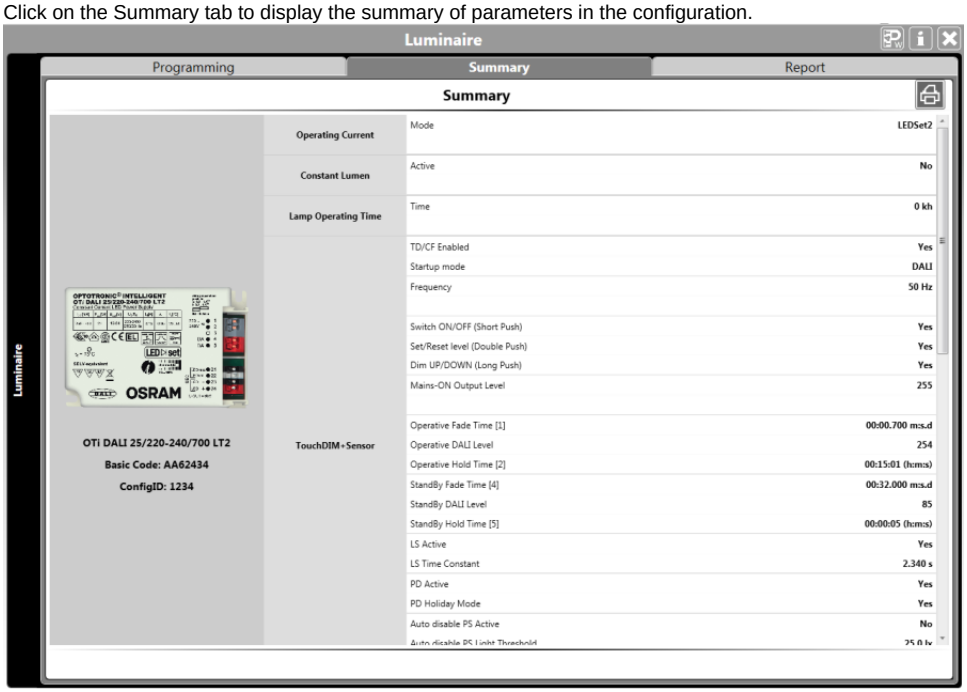


Compare configuration

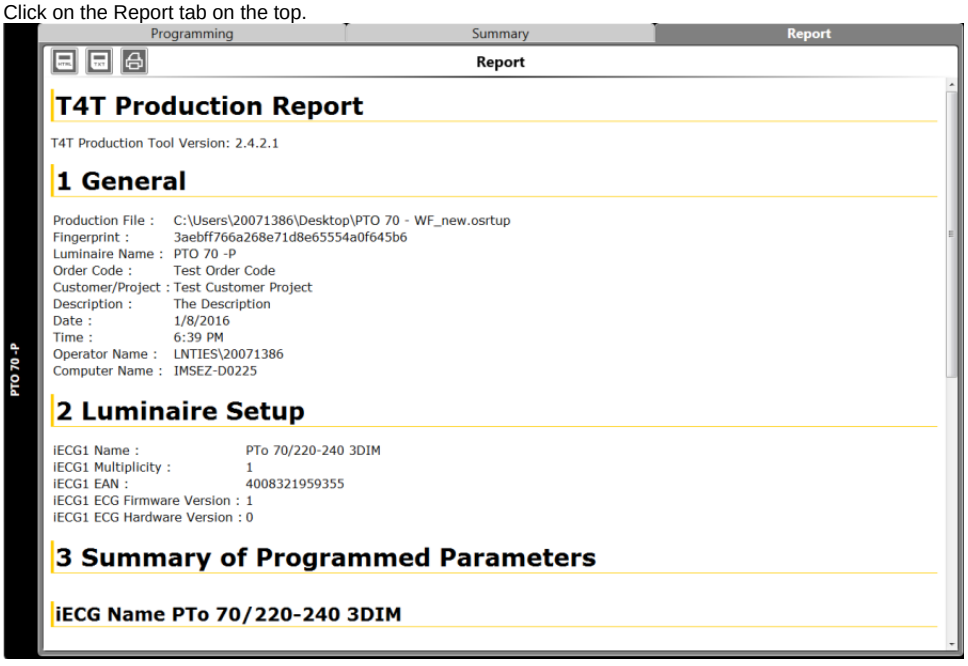
Step	Activity
1	Connect Luminaire to compare and load reference configuration (Production file .orstup) using  button in the toolbar
1	Click  button on the toolbar 

2	In case of difference found there is the possibility to see the details by clicking the "Details…" button in the result window: 

Parameters' Summary

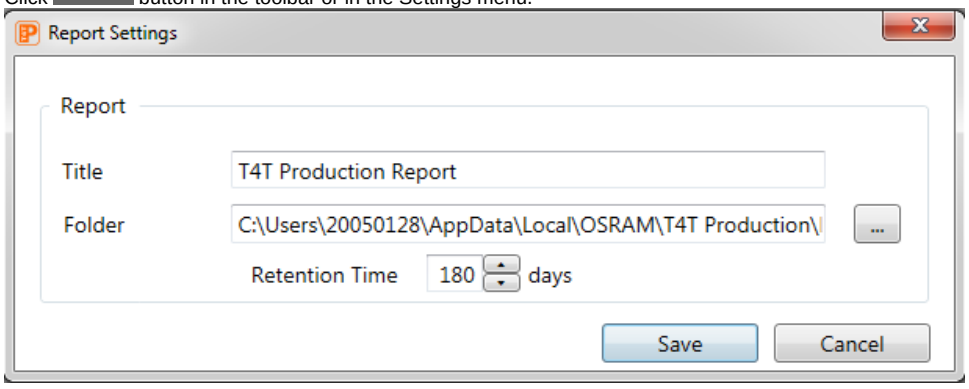
Step	Activity
1	Click on the Summary tab to display the summary of parameters in the configuration. 
2	In case the luminaire configuration has multiple drivers, a second table is shown below the first driver summary
3	Click  to print the report.

Production Report

Step	Activity
1	Click on the Report tab on the top. 

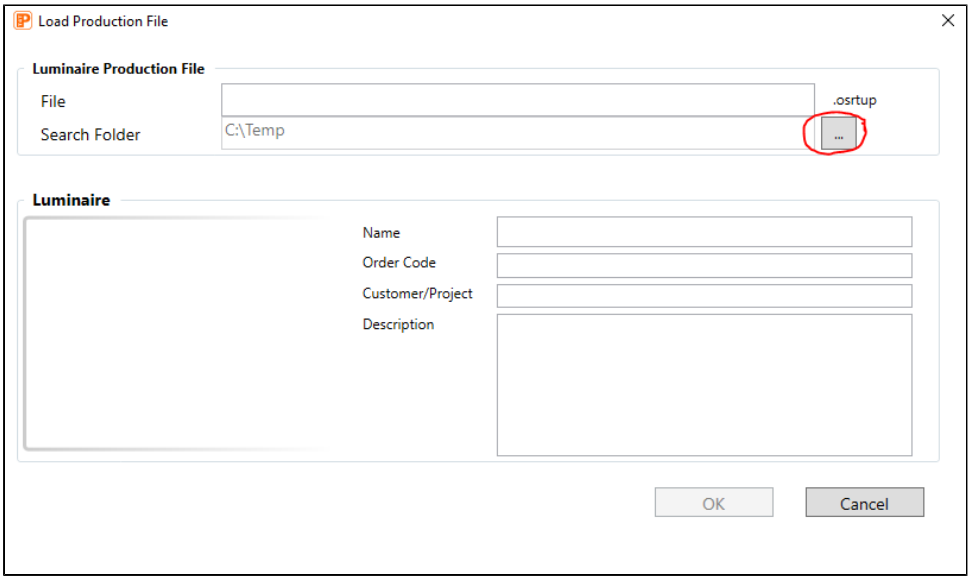
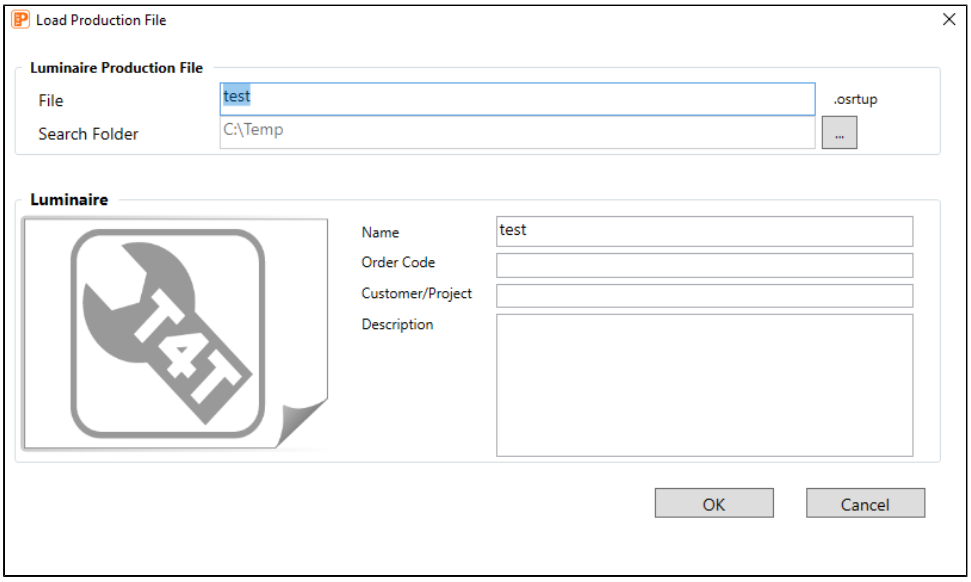
2	Click  or  to save the report as .txt or .html file respectively, or  to print it.

Report Settings

Step	Activity
1	Click  button in the toolbar or in the Settings menu. 
2	Title- Change Title in the Report group, if necessary (Title is mandatory)
3	Select the folder where to save the report.
4	Retention time: Retention time of the report in days after which the report shall be deleted

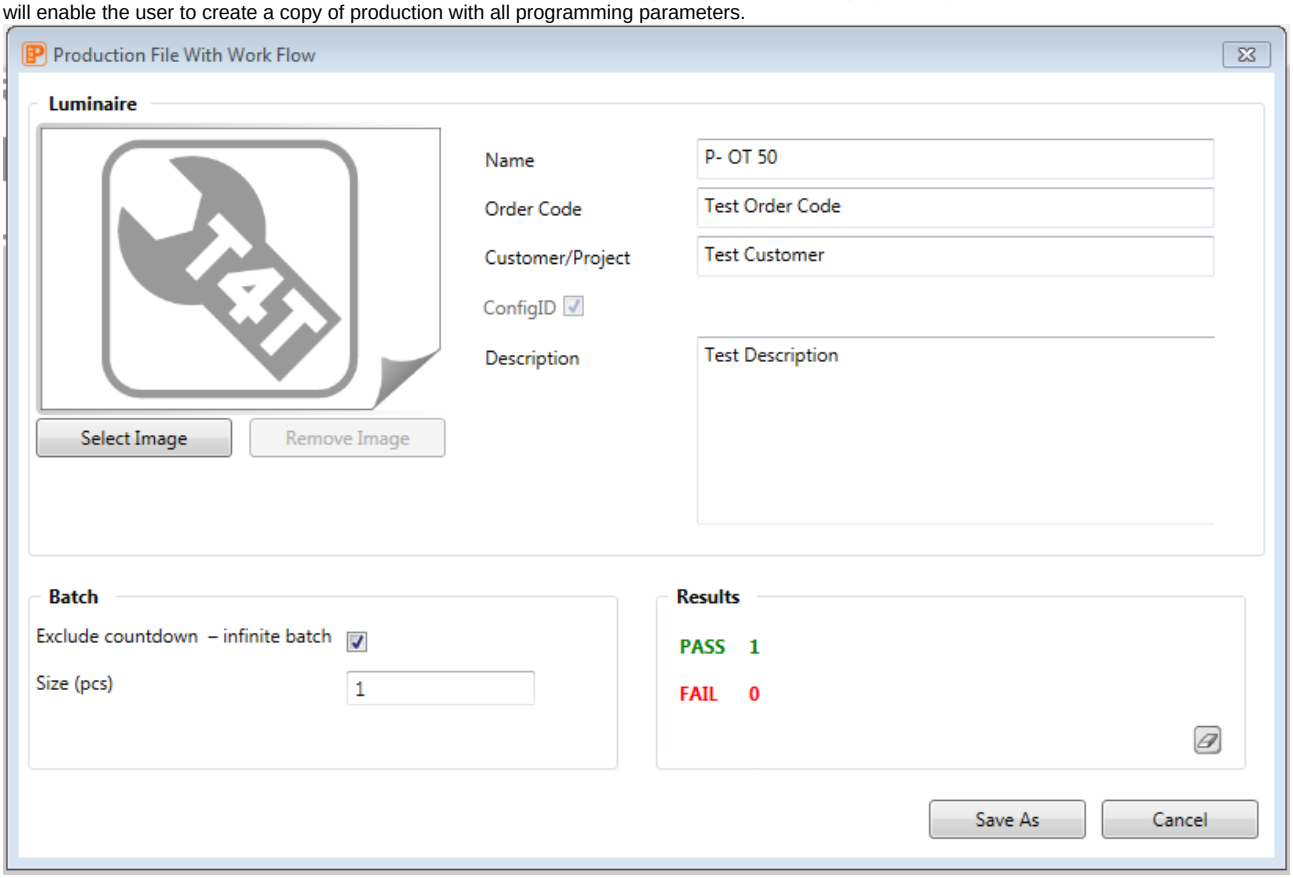
Load Luminaire Production Files using a Bar Code Reader

Step	Activity
1	**Preparation - Create the barcodes** Basically, you need to encode the filename (withtout the ".osrtup" ending) of the production files into a 2-D barcode. In this example, the production file is called "test.osrtup".  Therefor, only "test" needs to be encoded as a barcode. There are many free barcode generators available on the internet. Enter the word "test" (without the " ") and generate the code. In our example it would look like this: 

2	Now, open Tuner4TRONIC Production and click the  button on the toolbar. This window opens:  On the "Search Folder" field, click on the [...] Button at the right (marked red) and navigate to the folder where your production files are stored. In our example this is C:\Temp
4	Now you can use the Bar Code reader while this window is open. Scanning a barcode will fill up the "File" field in the **Luminaire Production File** 
5	Click OK to start programming.

Create Workflow File

The admin user will be able to create "Production File with Workflow Support" (=Work Flow File) by clicking on the  icon in the title bar. This will enable the user to create a copy of production with all programming parameters.



The following information can be edited in the Production File With Workflow window:

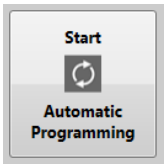
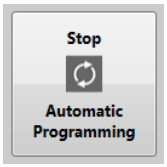
- Order Code
- Customer / Project
- Description
- Image
- Batch Size
- PASS/FAIL counter, with additional button to ZERO both of them.

When opening a Production File, Batch Size is set to "unlimited" if not available yet, otherwise previous values are retained.
On click of "Save As" a Production file with Workflow support is created.

Programming

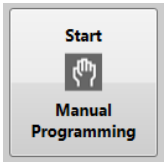
Automatic Programming

The SW detects automatically when the luminaire is connected and the programming concluded; operator has only to connect – disconnect the luminaires.
NOTE: this option is available only for Luminaire with one driver only and if single luminaire programming is selected in the programming setup.

Step	Activity
1	Click  button on the bottom of the **Programming Area**.
2	Connect the Luminaire and wait for the programming result. Check the "Programming Area" paragraph for details about the possible states.
3	In case of "PASS" result disconnect the luminaire and proceed with a new one starting from point 2.
4	In case of "FAIL" result the Automatic programming stops, then follow instruction on screen.
5	To stop the automatic programming process click on 

Manual Programming

The operator has to start the programming sequence by pressing the related button, after having connecting the luminaire to the programming interface.

Step	Activity
1	Connect Luminaire
2	Click  button on the bottom of the **Programming Area**.
3	Wait for the programming result
4	In case of "PASS" result disconnect the luminaire and proceed with a new one starting from point 1
5	In case of "FAIL" result follow instruction on screen, then a new programming sequence has to be started from point 1.

Programming Errors

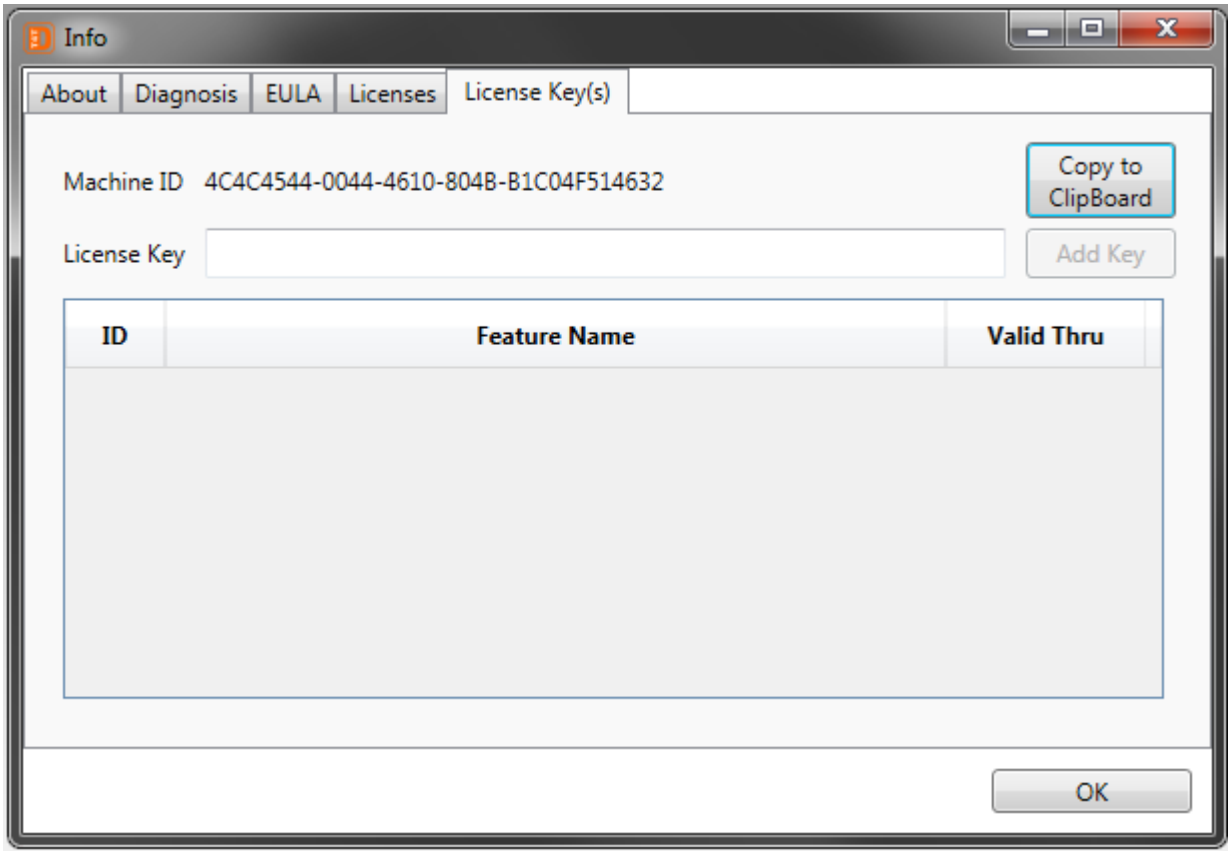
During both, Manual or Automatic programming, an error might occur and the luminaire is not programmed successfully. If this happens, a red indicator will appear in the programming area.
Follow instruction on screen for details.

License Key(s)

To activate certain additional functionalities in Tuner4TRONIC it might be necessary to introduce a license key.

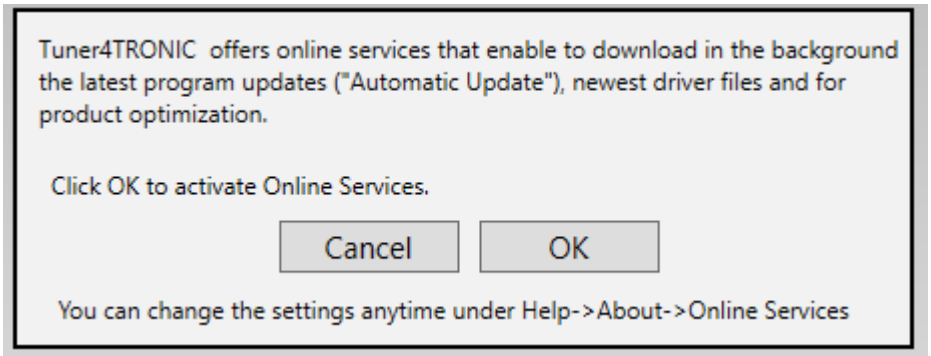
The license key management can be found in the menu About Info License Key(s).
In that window, the unique machine ID of the computer will be displayed.
When ordering a license it is necessary to copy this machine ID by clicking on the "Copy to clipboard" button and send it to OSRAM.
OSRAM will then generate a license key specifically designed for that machine ID (i.e. the license can't be used on another computer).
Entering the license into the "License Key" field and clicking the "Add Key" button will activate the license and the corresponding feature will be available for use in Tuner4TRONIC.

All entered licenses are displayed in the list below together with their expiration date.

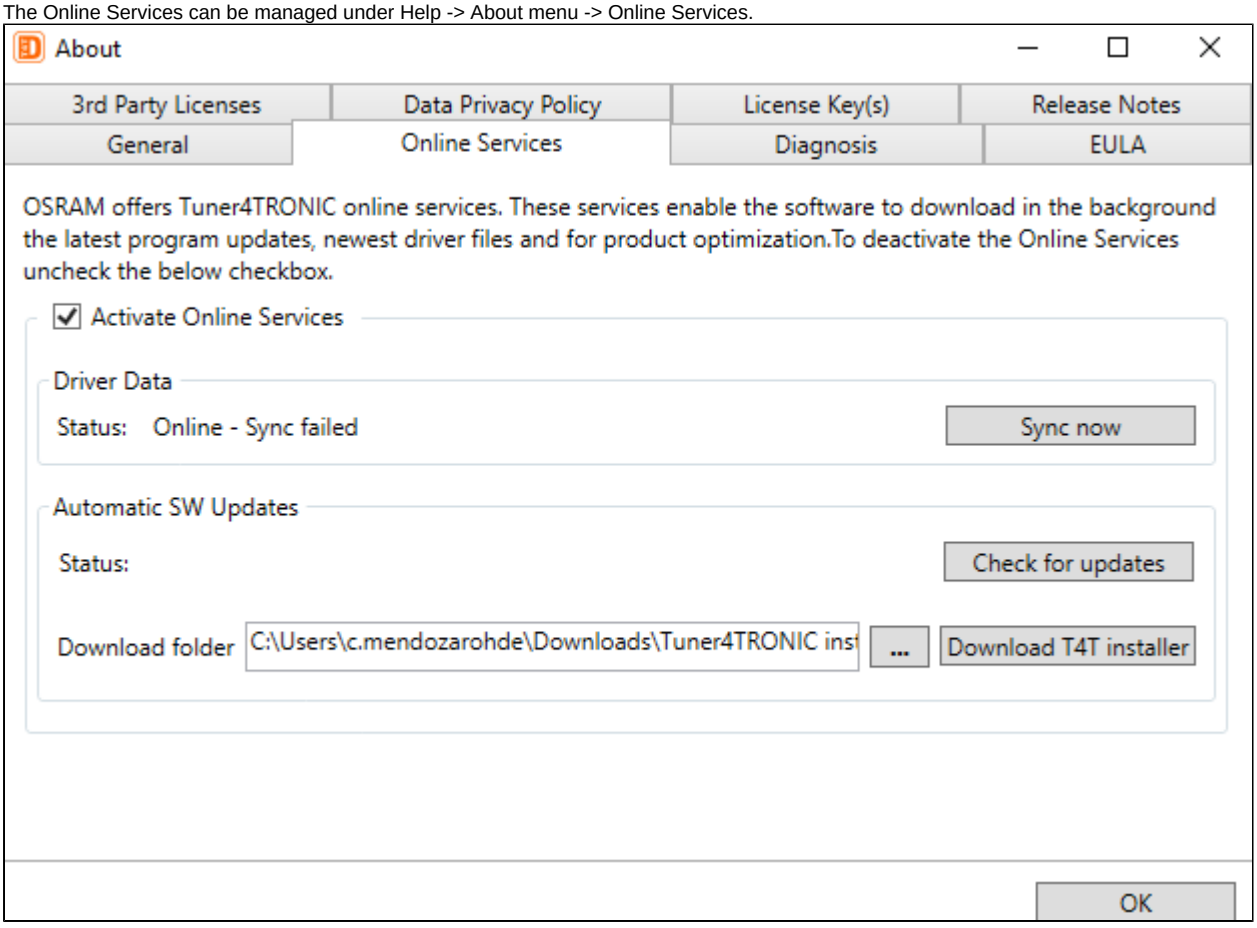


Online Services

When starting Tuner4TRONIC for the first time, a pop-up appears asking for permission to enable the online services.



The Online Services can be managed under Help -> About menu -> Online Services.



The online services enable T4T to download in the background the latest program updates ("Automatic Update"), newest driver files and for product optimization.

In case this feature is disabled intentionally or for technical reasons, please consult regularly www.osram.com/t4t for possible software updates and news.

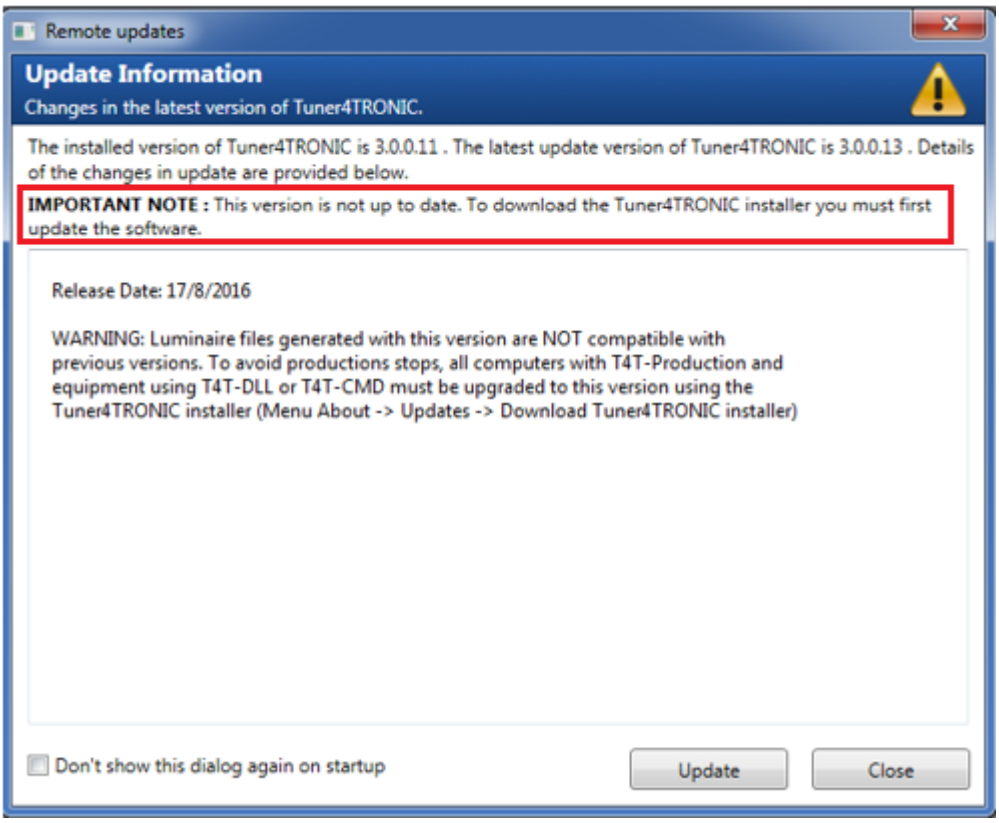
When a new update is available, a pop-up will appear prompting the user to install it.

Alternatively, the installation package can be downloaded by clicking on the "Download T4T installer".

- **Download Tuner4TRONIC installer** – Downloads the Tuner4TRONIC installer from the update server to the configured download folder. If the installed Tuner4TRONIC version is not up to date, it's needed to update the software before downloading the installer. The Remote updates window will open automatically prompting to update to the latest version first. After updating to the latest version, the latest

Tuner4TRONIC installer can be downloaded by clicking the "Download Tuner4TRONIC installer" option. The T4T Installer can be used to update further systems not connected to the Internet or T4T-Production version.

- **Download Folder** - The download path for the latest installer of Tuner4TRONIC can be configured by clicking the "..." button.
- **Check for updates** - Manually checks for updates on the server.

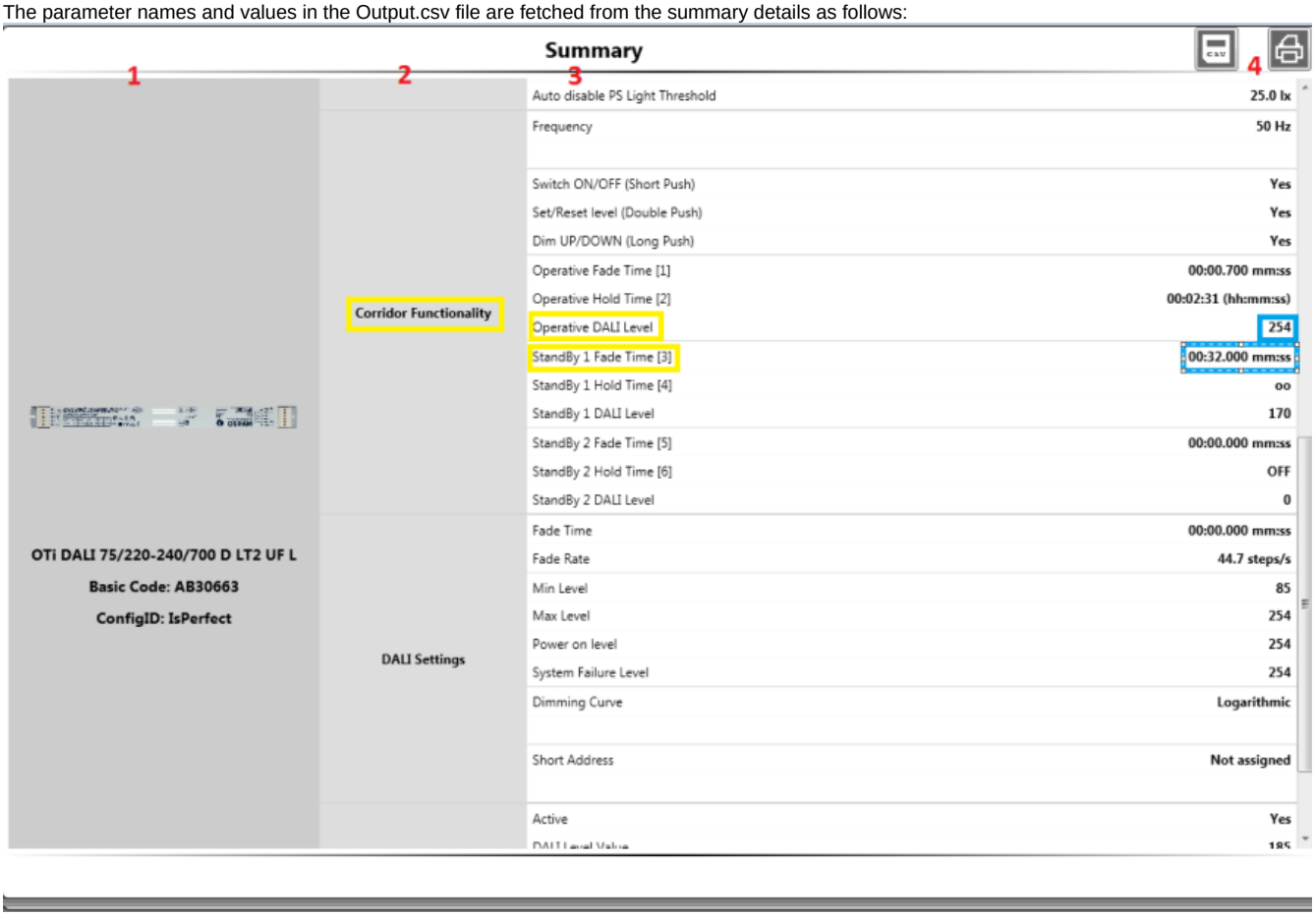


After clicking "Update", T4T will close the program to start the installation of the update.

Appendix

Label Printing: Parameter Name Definition

The parameter names and values in the Output.csv file are fetched from the summary details as follows:



The parameter name is created by merging with a dot "." the second and third column labels of the summary: **parameter name = *second column label.third column label***
Spaces in labels are always replaced by underscores (_)
For example: *Corridor_Functionality.Operative_DALI_Level*

The **parameter value,** which is displayed in the 4th column of the summary, is added in the second row of the Output.csv file, aligned with the related header.
For example, a portion of the Output.csv file opened as spreadsheet:

AI	AJ
Corridor_Functionality.Operative_DALI_Level	Corridor_Functionality.StandBy_1_Fade_Time_[3]
254	00:32.000 mm:ss