VS LIGHTING SOLUTIONS

Operating Manual   NFC Configuration Software

Programming of NFC operating devices (drivers) with the NFC programmer, alternatively also with the Feig Programmer or Feig NFC antenna

Ref. No.: 186646

NFC)))

NFC CONFIGURATION SOFTWARE

CONTENTS

■ GENERAL INFORMATION

The NFC configuration software and the NFC technology made by Vossloh-Schwabe enable quick and easy configuration of operating parameters as well as contactless data transmission (programming) to the driver, which must be in a voltage-free state.

Based on RFID technology, NFC (Near Field Communication) is a global transmission standard for contactless data exchange (reading and writing) via energy transmission over short distances of a few centimetres. The restricted range serves as a safety function and almost completely prevents unintentional connections. Above all the technology and the resulting safety advantages are ideal for driver programming purposes.

The system setup consists of a computer infrastructure with NFC configuration software and an EnOcean300 USB drive, an VS NFC programmer or alternatively a PC and a Feig programming device and the LED driver that requires configuration (see "Overview of NFC System Setup").

The configuration of the operating parameters such as output current (mA), CLO or DC level is effected via Vossloh-Schwabe's NFC configuration software. The created configuration details are sent to the NFC programmer via the EnOcean radio interface and permanently stored. Voltage-free driver programming is effected by holding the NFC programmer near to the driver. In this regard, the transponder of the NFC programmer (see marking ⋅⟩) on the device) must be held close to the driver's NFC tag antenna.

The software is thus configured and programmed without requiring either a cable or contact to be made, which goes to make short manufacturing times possible. In addition, being able to save several configuration profiles enables great flexibility, which lets luminaire manufacturers quickly respond to customer requirements.

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Up to six operating parameters can be individually set and saved.

1 Current:
Individual control of the output current (output) in mA.

2 CLO (Constant Lumen Output):
The luminous flux of LED modules decreases in a step-wise manner up to the end of the modules' service life. To guarantee constant luminous flux, the output of the control gear must be gradually increased over its service life.

3 DC Level (Emergency):
Many LED drivers feature emergency lighting functions. The percentile light or output value can be set for emergency operation (DC operation) via the software.

4 NTC (Negative Temperature Coefficient):
The NTC interface ensures thermal protection of LED modules by reducing current upon attaining critical temperatures. The reduction of temperature can be configured via an external NTC resistor that is connected to the driver.

5 Control Phase:
In the event of applying a voltage (mains voltage 230 V) to the controlphase terminal L_{ST}, the driver can either dim up (power increase) or dim down (power reduction).
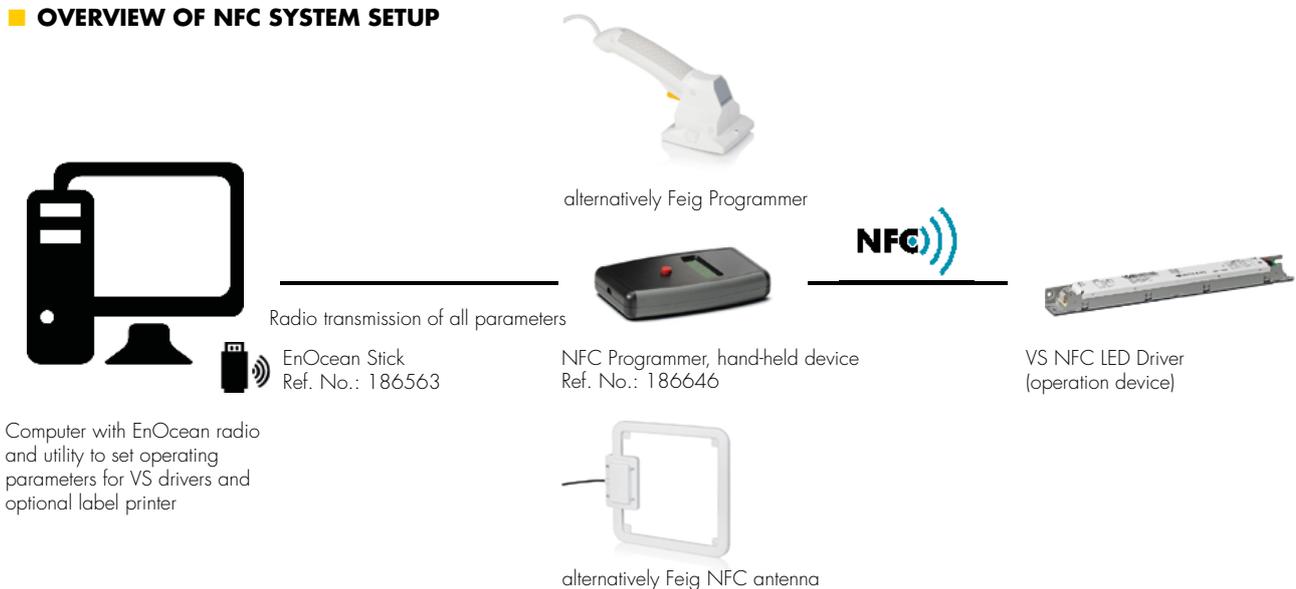
6 Active Power Supply:
This function enables the integrated "Active Power Supply" to be switched on and off for the power supply of other DALI devices.

7 Configuration via DALI:
This function allows changing all DALI parameters via NFC.

■ **OVERVIEW OF NFC SYSTEM SETUP**

alternatively Feig Programmer

NFC

Radio transmission of all parameters

EnOcean Stick
Ref. No.: 186563

NFC Programmer, hand-held device
Ref. No.: 186646

VS NFC LED Driver
(operation device)

Computer with EnOcean radio and utility to set operating parameters for VS drivers and optional label printer

alternatively Feig NFC antenna

NFC Configuration Software

■ **TECHNICAL DATA AND NOTES**

1. EnOcean300 USB Drive

EnOcean300 USB Drive	186563
Dimensions (L x W x H)	70 x 23 x 9 mm
Temperature range	−20 °C to +50 °C (max. 90% r. h.)
Radio guideline	USB 300: RED (EU)
Function	Sending and receiving EnOcean messages

2. NFC programmer by VS

NFC programmer	186646
Casing	ABS plastic
Dimensions (L x W x H)	147 x 89 x 25 mm
Colour	black / grey / red
Weight	170 g
Temperature range	+5 °C to +35 °C
Voltage supply	USB / 5 V (to recharge the non-removable battery)
Current consumption	max. 100 mA
Nominal voltage	3.7 V
Nominal capacity	1,400 mAh
Nominal output rechargeable battery	5 Wh
Optical displays	LC display
Accoustic display	Beeper
Antenna	Internal (NFC & EnOcean)
Operating frequency	13.56 MHz (NFC), 868.3 MHz (EnOcean)
RF transmission output	70 mW
RF interface	ISO-15693
Standards	EN 300 330 (EMC), EN 300 220 (SRD), EN 62479 (EnOcean), EN 301 489 (EMC), EN 62368 (product safety), EN50581 (RoHS)

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NFC Configuration Software

■ TECHNICAL DATA AND NOTES

1. Feig Programmer

| Feig Programmer	HF Handheld Reader ID ISC.PRH101-USB
Casing	ABS plastic
Dimensions (L x W x H)	230 x 100 x 80 mm
Colour	RAL 9002 / RAL 7044
Function	Programming of host applications
Weight	320 g (without batteries)
Temperature range	0 °C up to +50 °C (operation)
Voltage supply	5 V DC ± 0.2 V regulated
Optical displays	1 LED (multi-coloured)
Accoustic display	buzzer
Antenna	integrated
Operating frequency	13.56 MHz
RF interface	ISO-15693
Standards	EN 300 330, FCC 47 CFR Part 15 (USA), IC RSS-GEN, RSS-210 (Kanada), EN 301 489 (EMV), EN 60950 (elektr. Sicherheit), EN 50364 (Human Exposure), EN 60068-2-6 (Vibration), EN 60068-2-27 (Schock)

2. Feig NFC Antenna

Feig NFC Antenna	HF Loop Antenna ID ISC.ANT310/310
Casing	ABS plastic
Dimensions (L x W x H)	318 x 388 x 30 mm
Colour	white
Weight	700 g
Temperature range	−25 °C up to +55 °C (operation)
Voltage supply	5 V DC ± 0.2 V regulated
Current consumption	max. 500 mA
Antenna connection	1 x SMA plug (50 Ω)
Antenna connection cable	RG58, 50 Ω, length approx. 3.6 m
Operating frequency	13.56 MHz
RF transmission output	8 W
Standards	EN 300 330 (EMC), FCC 47 CFR Part 15 (USA), EN 301 489 (EMV), EN 60950 (Niederspannung), EN 50364 (Human Exposure)

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Feig NFC Module	ISO15693 Long Range Reader Module, Standard
Casing	Aluminium
Dimensions (L x W x H)	120 x 160 x 35 mm
Voltage supply	24 V DC
IP:	54
Maximum power consumption [W]:	16
Transmission power [W]	1-5
Output	1 Relay (24 V, 1 A)
Input	1 Optocoupler (24 V DC)
Interfaces	Ethernet (TCP/IP), USB, RS232Indicators, optical 4 LEDs for diagnosis

3. Feig NFC Table reader
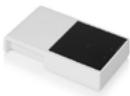
Feig NFC Desktop reader	ISO14443/ISO15693 Desktop reader
Dimensions (L x W x H)	144 x 84 x 18 mm
Antenna	Integrated Antenna
Voltage supply	5 V, USB Bus powered
Interfaces	USB 2.0

2.1 Switching the VS NFC device on and off

Pressing the red button will activate the device. If a driver is not programmed, the device will switch itself off after 5 minutes and will go into standby mode.

The 5-minute timer will start anew after each programming process. If the red button is pressed for more than 3 seconds and then released, the device switches off.

Note: to enable data transfer, the NFC programmer must be switched on, however it is not necessary to press the red button.

2.2 Notes on charging

Only ever charge the NFC programmer using a common USB interface and a charger. If the battery is completely empty, recharging can take up to 72 hours.

Red button to confirm commands

Charging port

2.3 Safety information

- Please check the device for any damage prior to using it. Should the casing or the display screen be damaged, please neither use the device nor recharge it. The device must be disposed of in a suitable manner. The device must not be charged outside of the specified temperature range.

- The USB port is provided for the purpose of synchronise and charging the NFC programmer (USB 1 or 2). Connecting non-USB leads or conductive implements is not permitted and can damage the device. Never use the device within a damp environment or one that poses a risk of explosion.

- If the device is to be put into storage, please ensure the battery is sufficiently charged.

- Do not use the device (i.e. press the red button) if the battery is completely empty since this would damage the device. Never use the device if the battery is competely empty since this would damge it.

- Only ever use commercially available and approved USB chargers for the purpose of recharging.

- The device must only ever be used for the purpose for which it was intended, namely to configure VS control gear.

- No charger with a power uptake of > 15 W must be used to charge the device.

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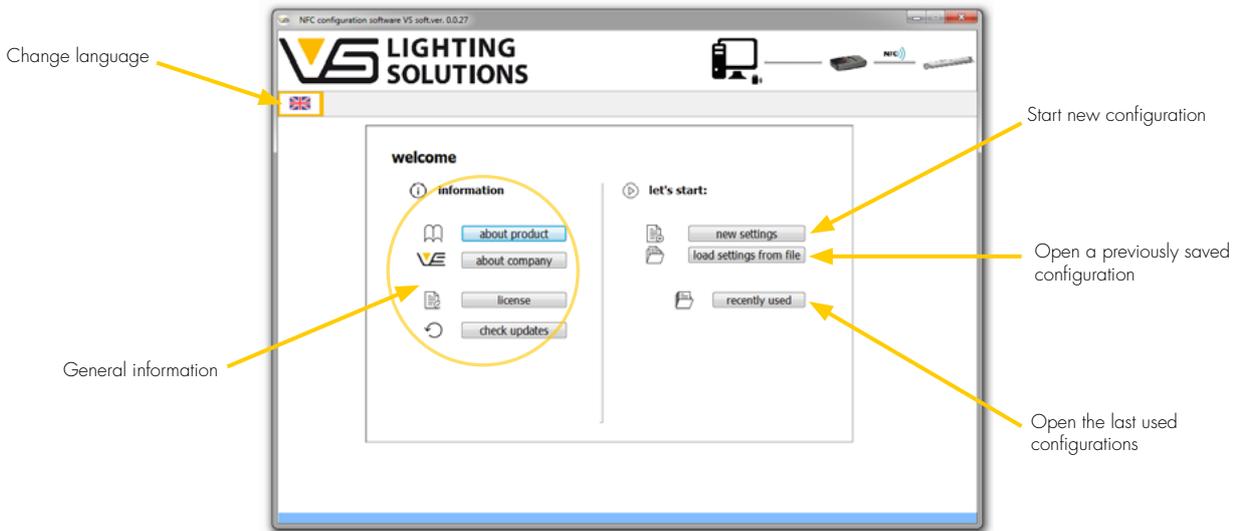# NFC Configuration Software

■ INTRODUCTION

1. Downloading the software

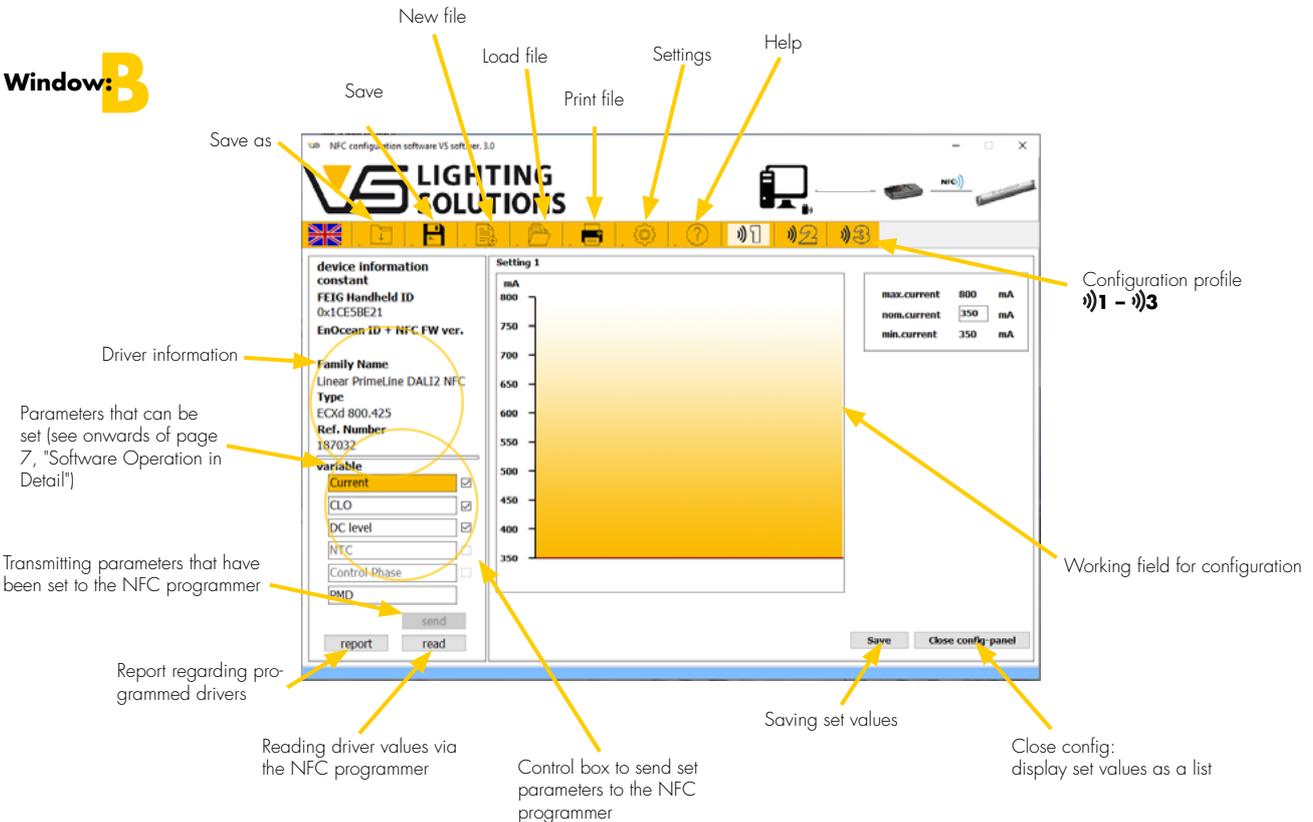The NFC configuration software can be downloaded at the following link: www.vossloh-schwabe.com

2. Short Overview

The following two images (windows A and B) provide an overview of the software's two working windows.

Window: A

- Change language
- General information
- Start new configuration
- Open a previously saved configuration
- Open the last used configurations

Window: B

- Save as
- Save
- New file
- Load file
- Print file
- Settings
- Help
- Driver information
- Parameters that can be set (see onwards of page 7, "Software Operation in Detail")
- Transmitting parameters that have been set to the NFC programmer
- Report regarding programmed drivers
- Reading driver values via the NFC programmer
- Control box to send set parameters to the NFC programmer
- Saving set values
- Close config: display set values as a list
- Working field for configuration
- Configuration profile))1 –))3

NFC SOFTWARE OPERATION IN DETAIL

The following details how to operate the software and its four-step configuration.

1. Step

SYSTEM SETUP

Following successful download and installation of the software, the NFC system setup (see page 3) needs to be carried out. Apart from this software, further prerequisites are the NFC programmer (incl. charging cable) and the EnOcean USB drive or alternatively the Feig programmer with corresponding NFC antenna.

It is recommended to connect the programming device to the PC before starting the software.

For the VS NFC programming device the EnOcean USB drive must be inserted into a free USB port on your computer. To complete the pairing process with the EnOcean USB drive, the NFC programmer must be connected to the computer using the charging cable. When using the NFC hand-held programming device, care must be taken that the safety notes (see page 5) are observed. Once these preparatory steps have been completed, you can run the software.

There are two options:
1. First use:
   start with new settings ("New Settings")
2. Repeat use:
   already saved settings/files or the last used settings can be opened ("Load settings from file"/"Recently used").
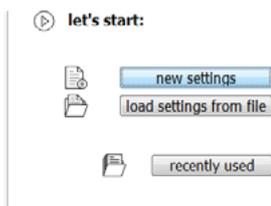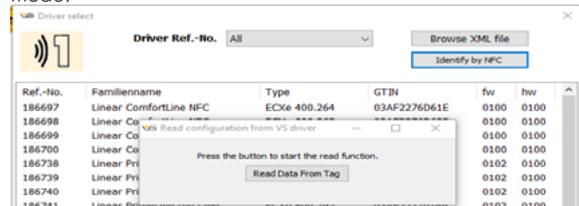

Driver selection
First the driver you want to programm must be selected.
The driver can be selected via the reference number.
A list with all recognized drivers' reference numbers will appear.
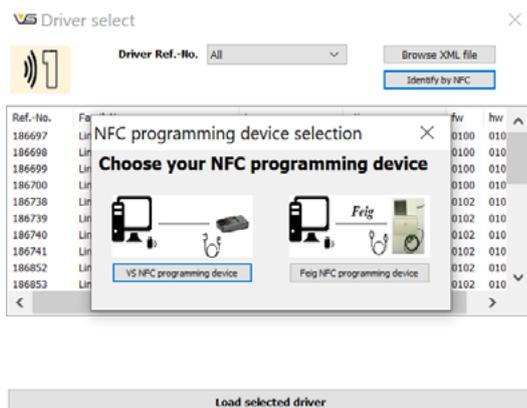
Driver selection via NFC
You can also select the driver to be programmed using the "Identify by NFC" function. To do this, the NFC programming device must already be connected to the PC. Now click on the button "Identify by NFC", then select your programming device. The programming device then goes into read mode and it can determine your driver model and select it in the model list. If the programming device is already known to the software, it immediately switches to read mode.
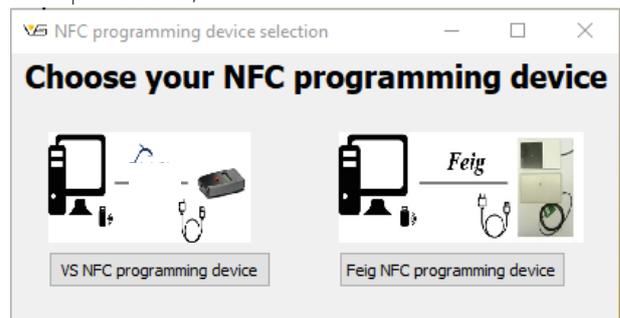

New NFC driver generations can be loaded manually using a current XML file. The list will then show all drivers recognised from the XML file.
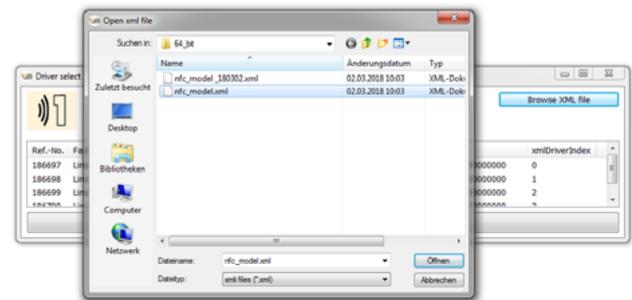
Selection of programming tool
You can choose between the wireless VS NFC programming device and Feig NFC programming device (USB-handheld, desktop or antenna).

Pairing of VS NFC programming device
Following driver selection, a connection must be established between the EnOcean drive and the NFC programmer (pairing).

Initially, the software will automatically search for a ComPort for the EnOcean drive. The search can also be performed manually with a click on "Search for EnOcean Ports". If several drives have been connected, the respective port has to be selected manually.

Following a successful search, it must be ensured that the ComPort is opened/activated ("openPort/closePort").

"openPort": ComPort is closed and will be opened by clicking
"closePort": ComPort is opened and will be closed by clicking

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Next the NFC programmer will be paired via the NFC programmer's ID. To this end, a pairing request must be sent to the NFC programmer using the "Send Pairing Request" button.

Pressing the red button of the VS NFC programmer will agree to the pairing confirmation displayed on the NFC programmer. Once pairing has been successfully completed, the message "Paired with EnOcean Drive" will be displayed.

Connecting Feig programming device
Choose the button Feig NFC programming device and connect the Feig USB device with the computer. In the following window select the connected Feig device.

Note: If an information window appears during the pairing process, a software update will be necessary. Therefore click on the provided button and carry out the further steps in the "NFC-Programmer Update" dialog window. The NFC programmer must be connected to the computer via the enclosed charging/data cable to receive the new software updates (data).
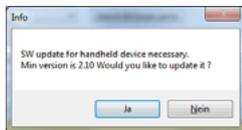

NFC Programmer Update
1. Step:
   First the USB port get searched by connecting the data cable and the NFC programmer.
2. Step:
   After the successful search, the port must be opened and the button "Send MC + FW" should be clicked to start the update process. Wait until it is finished. If the update is successful, a confirmation will appear on the NFC programmer.


2. Step
CONFIGURATION OF THE 6 PARAMETERS

Configuration can be carried out once the software has been successfully paired with the NFC programmer.

All in all, there are three configuration profiles for any single selected driver. Each driver has constant and unchangeable information (see image).
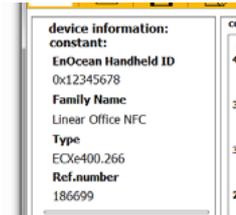

Depending on the driver, parameters can be configured. Parameter configuration is performed in the respective working field. Newly configured parameters must be activated via the control box.
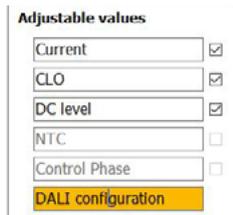
Note: once parameters have been successfully set, the values can be saved by clicking on the "Save" button.

Current

A diagram for setting the current (mA) of the driver will be displayed in the working field. This will also show the limits (mA) of the selected driver. The setting can be performed via drag and drop or by entering the values.

NFC Configuration Software
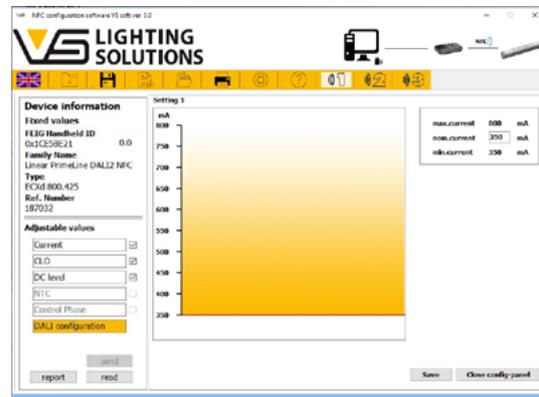
2 CLO (Constant Lumen Output)

A diagram for setting the CLO function of the driver will appear in the working field. To this end, the defined LED module's service life will have to be entered. A maximum of five light levels (in %) can be entered in the service life set for the LED module. In this regard, it must be noted that L1 represents the start and L5 the end values of the light levels (x% of the set current in mA).

For example:
Current setting (mA):   500 mA
Start value of the light level L1:   90% = 450 mA
End value of the light level L5:   100% = 500 mA
L2–L4 are usually defined between these limits
(linear progression between L1 and L5).
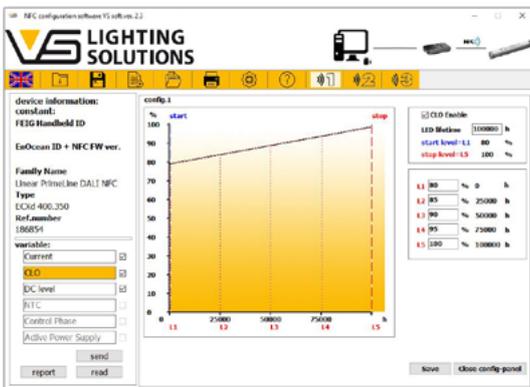
3 DC level (Emergency)

The working field contains a slider for setting the light or output level during emergency power operation (DC operation) in percent. Manual entry can be effected between 50 and 100% as well as per drag and drop in the slider.
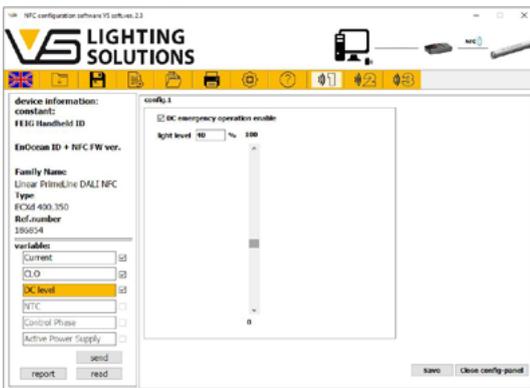

4 NTC (Temperature Reduction)

A diagram to set the driver's NTC function will appear in the working field. Here you can define temperature values (start, stop and cut-off) of the external NTC resistor with which the driver is equipped. Furthermore, a light level can be defined which will be dimmed once the "stop" temperature is exceeded.

For example:

Current setting (mA):	500 mA
Start temperature:	50 °C
Start dimming level:	100% (normal operation)
	– cannot be set
Stop temperature:	80 °C (at the NTC resistor)
Stop dimming level:	20% (will be dimmed upon reaching the stop temperature)
Cut-off temperature:	90 °C (at the NTC resistor)
Cut-off dimming level:	0% (switches off) – cannot be set
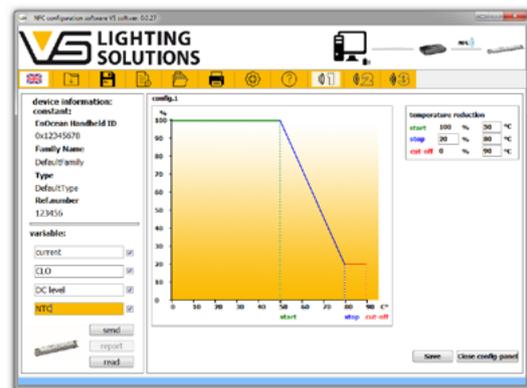
5 Control Phase

A slider in the working area enables the power reduction to be set in 1% steps, another slider enables the control phase duration to be set in 1-second steps.
In the event of applying a voltage (mains voltage 230 V) to the terminal L_{ST}, the driver can either dim up (power increase) or dim down (power reduction).

Control phase function parameterization is done with NFC.
The following parameters can be set:
- Control phase mode
  - Mode 0: control phase deactivated
  - Mode 1: luminaire starts at 100% and reduces the power for the duration "L_{ST} Hold Time" to the value set via NFC under "L_{ST} Level"
  - Mode 2: luminaire starts with the reduced value, which was set via NFC under "L_{ST} Level", and increases the power for the duration "L_{ST} Hold Time" to 100%.

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- Control phase level (L_{ST} level)
  - Control phase level can be adjusted from 0–100% in 1% steps.
- Control phase duration (L_{ST} Hold Time)
 - Control phase duration can be adjusted from 0–18 hours in 1 second steps.

6 Active Power Supply

A drop-down list appears in the working field, in which the Active Power Supply can be switched "ON" and "OFF".

- DALI power supply – Blu2Light ready:
The DALI2-B2L interface has an integrated power supply for further DALI devices, e.g. sensors. The DALI control system is connected via the terminal pair da+/da-. Please pay attention to the polarity.
- DALI supply voltage:
Note: With a parallel connection, the sum of guaranteed current output is the basis for calculating additional DALI participants Please take the current consumption of active DALI devices (e.g. sensors) from the corresponding data sheet. Passive DALI devices (f.e. drivers without DALI power supply) are assumed to have a current consumption of 2 mA.
Note: When DALI power supplies are connected in parallel, it must be ensured that the sum of the maximum possible current output of all voltage sources on the DALI bus does not exceed 250 mA.
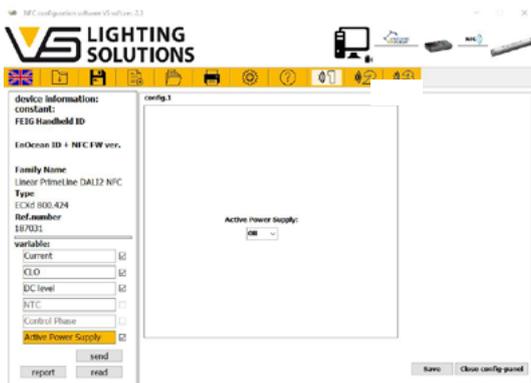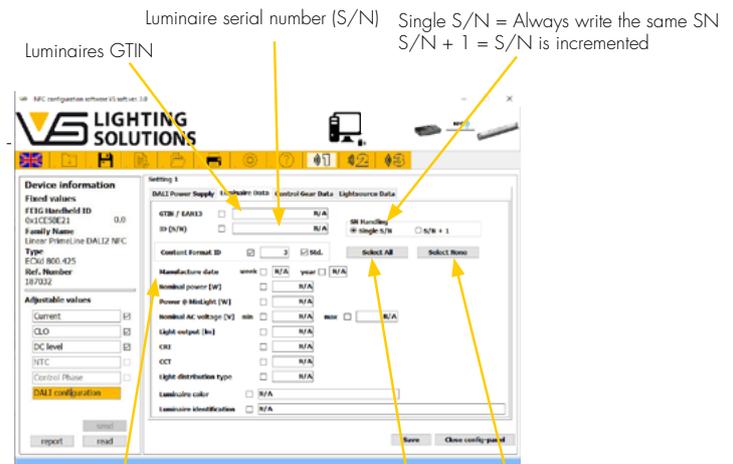

7 Configuration via DALI
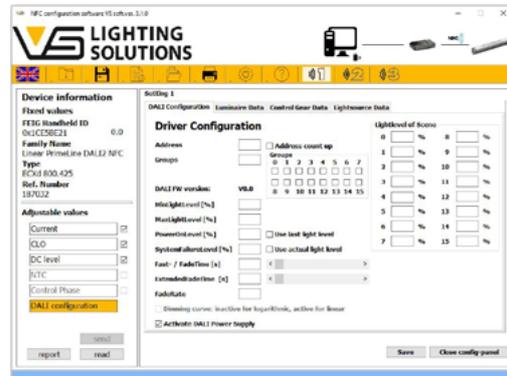
For some drivers it is possible to configure the DALI parameters via NFC. In the work field
a window appears with the tabs, DALI Configuration, Luminaire Data, Control Gear Data and Lightsource Data.
Note: Here all DALI parameters can be adjusted and also the active DALI power supply can be switched off/on.

7.1 Luminaire data

Luminaire serial number (S/N)
Single S/N = Always write the same SN
S/N + 1 = S/N is incremented
Luminaires GTIN

Luminaire data that can be stored, according to DALI standard. These can also be read/changed via DALI during operation.

Deletes all checkmarks
Sets all checkmarks

All luminaire data can be entered here, and the configuration can be saved by pressing the Save button.

7.2 Control gear data
A window with the heading "Diagnostic/Maintenance" appears in the work area, all data of the driver can be viewed here. (operating time, start counter, overall failure counter etc.). The configuration can be saved by clicking on the save button.
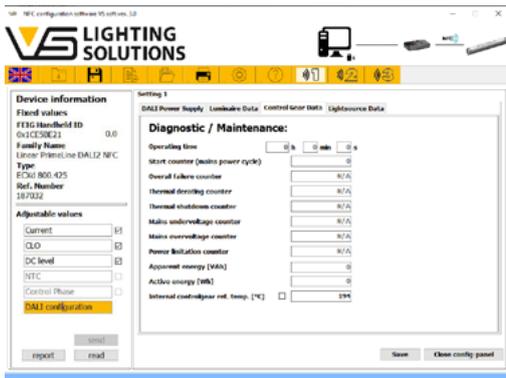
7.3 Light source data

In the work field, all values for the light source can be viewed, as with the item Contoll Gear Data.

3. Step

◼ DATA TRANSFER PER NFC

Send:

Once configuration has been completed, the parameter values can be transmitted to the VS NFC programmer and then to the respective driver using EnOcean. Alternatively, a wired transfer via USB to the Feig programmer is possible.

"Send" must be clicked to transmit parameter values to the NFC programmer, whereupon all activated parameters will be sent to the handheld device and confirmation will appear in the NFC programmer and the software.

Should transmission fail, please check the system setup.

Read:

Driver configuration can be read via the "Read" function.

After clicking on the "Read" button the following message will appear in the software and a confirmation in the NFC programmer.

Note: the NFC programmer should remain connected to a power source until the parameterisation is completed.

For reading purposes, the NFC programmer must be held near the respective driver, in which regard the transponder of the NFC programmer (see marking ⟩) on the device) must be held close to the driver's NFC tag antenna.

The NFC transmission then occurs automatically and is confirmed with a short acoustic signal. The display screen of the NFC programmer will also confirm whether the reading process was successful.

If the transmission was faulty, a long acoustic signal sounds and the programming of the driver must be repeated. For a description of error codes and how to rectify these, you will find more information on page 11.

Note: If only error codes are shown, connect the driver to the power supply for 20 seconds and repeat the programming process of the driver.

If the programming process was successful, the configuration profile can be saved under "Save" or "Save as".
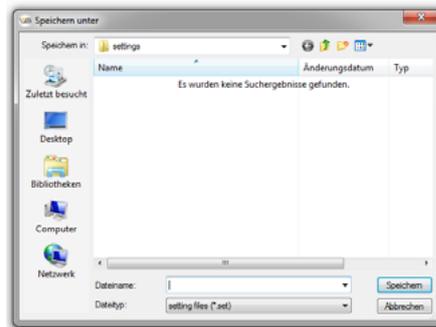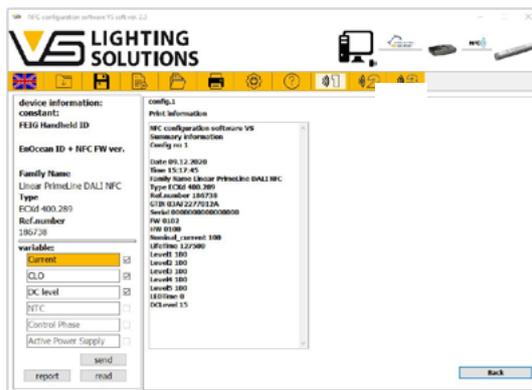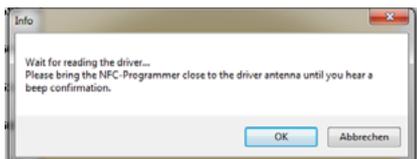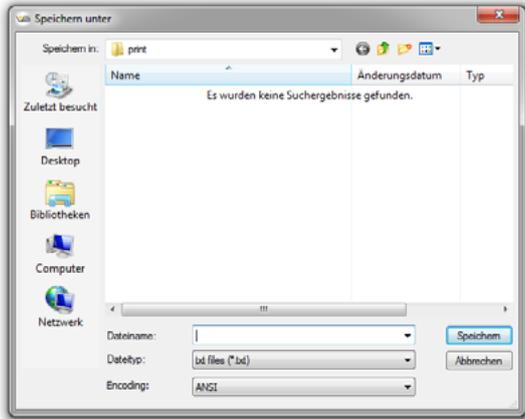

Once successfully saved, the configuration profile can be closed.

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4. Step

■ READING AND PRINTING

To print configured parameters a file (.txt) can be created that can then be integrated into an external printing program (not included in the scope of delivery) for the purpose of creating a layout.

■ ERROR CODES

The table annex contains error codes and suggestions for rectifying errors.
If unknown error codes are displayed please contact your VS team.

Error code on the LC display screen	Signal	Error description	Error rectification
102	short	No feedback from the NFC IC	Switch the device off and on again. If the error code keeps on being shown after several repetitions, the device is defective.
203	long	Driver was removed from the NFC field while writing the dataRW block.	Connect the driver to the power supply for 20 seconds and repeat the programming process of the driver.
213	long	NFC tag collision	Please repeat the process and remove other NFC tags or NFC drivers that are potentially within the field.
216	long	Invalid programming	Please repeat the programming process.
219	long	Incorrect driver information	Please select the driver that you want to configure in the software and send the values set to the NFC programmer. After that, please repeat the programming process.
220	long	The settings (firmware) of the driver and the NFC programmer do not correspond	Please check the production code of the driver and update it to its latest version or update the XML file of your configuration software.
221	long	The driver does not correspond. The driver is incompatible with the NFC programmer	Please check whether the driver you wish to configure is compatible with the NFC programmer.

Whenever an electric light goes on around the world, Vossloh-Schwabe is likely to have made a key contribution to ensuring that everything works at the flick of a switch.

Headquartered in Germany, Vossloh-Schwabe counts as a technology leader within the lighting sector. Top-quality, high-performance products form the basis of the company's success.

Vossloh-Schwabe's extensive product portfolio covers all lighting components: LED systems with matching control gear units, highly efficient optical systems, state-of-the-art control systems (Blu2Light and LiCS) as well as electronic and magnetic ballasts and lampholders.

The company's future is Smart Lighting.

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