

DALI Driver Configurator User Guide

Tool for advanced LED driver parameter setting and iC configuration.



iNTELLIGENT COLOUR



This user guide provides instructions on how to program LED driver parameters, how to configure iC colour control features, and provides guidance for the use of the Helvar DALI Driver Configurator program. Stay tuned for updates on www.Helvar.com.

iC colourcontrol

Intelligent Colour (iC) is Helvar's solution for LED drivers and lighting control systems supporting DALI device type 8 functionality for colour control. The DALI standard defines a subgroup 209 (devices type 8) for colour control of LED drivers. In order to achieve actual colour control of the LED driver, specific DALI colour commands are sent.

The driver must support multiple output channels, which are controlled individually. Two channels are used for tunable white, and up to four for RGBW (red, green, blue and white). DALI device type 8 can control these multiple channels using only one DALI address, allowing for more devices on each DALI subnet.

DALI device type 8 LED drivers

LL35/2-E-DA-iC, LL60/2-E-DA-iC, LC35/2-E-DA-iC Note: recommended minimum dimming level for good tunable white dimming performance is specified on individual driver datasheets.

Parameter setting program Helvar DALI Driver Configurator

The Helvar DALI Configurator tool is divided in tabs to ease user comfort. Once device data is read all functions that are not supported will appear as disabled and not accessible. The configuration tool includes text fields where parameters are modified by typing into information fields or pressing buttons to select/enable/disable functionalities. Each sub tab includes a "Upload Changes" button that uploads the modified parameters of the selected tab into the driver (changes of each tab must be accepted separately by pressing the "Upload Changes" button).

The program is used to customize the LED driver for a specific need. Following selection of configurable LED driver parameters are available – Features, iC Features & DALI settings. iC Features & DALI settings allow to configure LED module parameters and driver parameters affecting the control of colour temperature in order to ensure a proper operation of colour and intensity control.

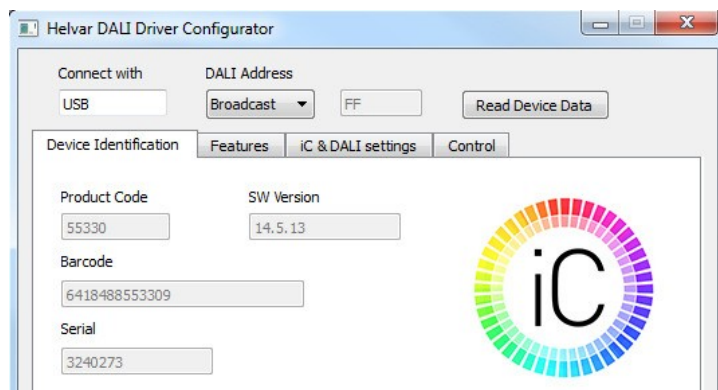


Figure 1. Helvar DALI driver Configurator tool window and Device Identification tab when iC driver connected.

Device requirement

DALI power supply (401, 402 or iDim Solo 403), DIGIDIM 505 Serial interface or USB-to-DALI Interface Unit 510 (rev. 4 or newer). For installation run the *Install_Helvar_DALI_Driver_Configurator_v1.33.exe*. Win 7.

Preliminary setup

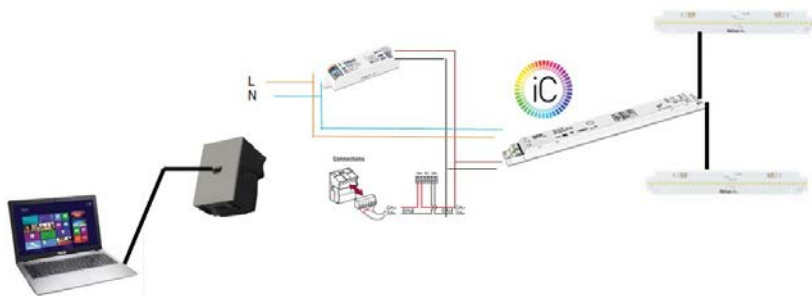


Figure 2. Show one example setup to use when using Helvar DALI Driver Configurator

Parameter list

- Main window is common for all sub tabs showing selected COM port, DALI address and Read Device Data button (Figure 1). Note every field should be filled before upload changes easiest to read device data to get default values from the LED driver. If value is missing or it is wrong it is indicated in status bar “something went wrong”.
 - Connect With – type in COM port used. COM1 as default setting. Automatic detection for 510 USB-to-DALI interface if 510 connected before turning ON the program.

- DALI Address – select DALI short address if several DALI devices in same DALI subnet. Use broadcast commands if programmed one device at the time or all of the devices on network are the same product type.
- Read Device Data – pressing this button the program will read device data from the driver and update information to all applicable fields. This operation takes approximately 5 seconds to complete. Fields not supported by the driver will be disabled after this action.
- Device Identification tab shows device information once device data is read by using “Read device data” button.
 - Product Code
 - SW Version – LED driver SW version
 - Barcode
 - Serial
- Features tab allows to configure and select general LED driver parameters
 - Switch Control Enabled – selecting this radio button enables the functionality if it is supported by the LED driver.
 - Power On Last Level Enabled – selecting this lights return to the last DALI level used before the power break.
 - Iset by SW – select this to override current setting via multipurpose Iset-terminal in the driver. The same driver terminal can then be utilized for other functions like the NTCoperation.
 - Output current – Type in the driver output current in mA. If the value is outside of the LED driver output current range the driver will use the closest specified value. The drivers use the smallest output current as a default.
 - NTC Enabled – select this feature to protect luminaire from critical high temperatures.
 - NTC value – type in the NTC value corresponding to the trigger temperature. If supported the NTC value is specified on each LED driver datasheet.
 - CLO Enabled – select this to compensate against light depreciation of the light source.
 - CLO Start level (%) – type in desired light level to maintain Constant Light Output
 - CLO Life Time (x1000 h) – type in desired lifetime in thousand hours. This time describes when the output current needs to be on 100% level to maintain the selected Constant Light Output.
 - Current reduction byte – defines the reduction percent of the nominal output current as given values between 0 ... 255. Next to this text field the actual selected current reduction percentage is shown. Note this feature is supported by *LC1x30-E-DA*, *LL1x40-E-DA-350-700*, *700-1050*, *LL1x70-E-DA* and *LL1x20-E-DA* “rev. N” onward.
- iC Features & DALI settings tab allows to adjust parameters for colour functions and modify selected DALI parameters. Note that colour temperature calculations are made in mireds to ensure the most accurate performance and the best result for tunable white solutions. Mired correct non-linearity of colour temperature on Planckian Locus Curve. This conversion on LED driver calculations from mireds to Kelvins show rounding to actual Kelvin values displayed.

$$\text{Mired} = 1.000.000/\text{Kelvin}$$

- Ch 1 (cool) Tc (K) – defines colour temperature for Ch1 cool white LED. Default 5000 K.
- Ch 2 (warm) Tc (K) – defines colour temperature for Ch2 warm white LED. Default 3000K
- Ch 1 (cool) TY (lm) – defines lumen output for LED module(s) connected in ch 1. Default 1100 lm.
- Ch 2 (warm) TY (lm) – defines lumen output for LED module(s) connected in ch 2. Default 1100 lm.

Figure 3. Example of parameters to set for a driver that supports tunable white operation. Ch1 5000 K and 2180 lm, ch2 3000 K and 2020 lm. These parameters ensure that target light intensity and colour temperature are met during the light output and colour temperature control.

- Power On Colour Temperature (K) – defines colour temperature where the lights turn ON after mains breakage.
 - Power On Last Colour Enabled – by selecting this button the light will return to the last colour temperature used before mains breakage.
- Power On Level (85-254) – defines the light level where the lights switch ON after a mains break. Next to this text field is an indication of the selected level in percent value.
 - Power On Last Level Enabled – by selecting this button the lights return on last DALI level used before the power break.
- System Failure Colour Temperature (K) – defines colour temperature where the lights go if the DALI line disappears.
 - System Failure Colour Disabled – select this button if no operation is required after system failure.
- System Failure Level (85-254) – defines the DALI level where the lights go if the DALI line disappears. Next to this text field there is an indication of the selected level in percent value.
 - System Failure Level Disabled – select this button if no operation is required after system failure.
- Linear Dimming Curve (default DALI) – Select to use linear dimming curve. The DALI curve as default is linear for the human eye.
- Upload Changes – Upload iC & DALI Settings from the configurator into the driver
- Save to file – Saves iC & DALI Settings to file on your computer for later use
- Download from file – Downloads iC & DALI Settings from your computer file to the configurator iC settings window
- Control tab is for verification and evaluation of tunable white settings in practice (Figure 3)
 - New Colour Temperature – can be changed by typing the value into text field

- Active Colour Temperature – show status of tunable white colour temperature
- Light level – can be adjusted with the slider bar
- Driver Test Sequence – button performs a quick test of the actual colour temperatures on 100% and 50% intensity levels changing the CCT value from one extreme to the other

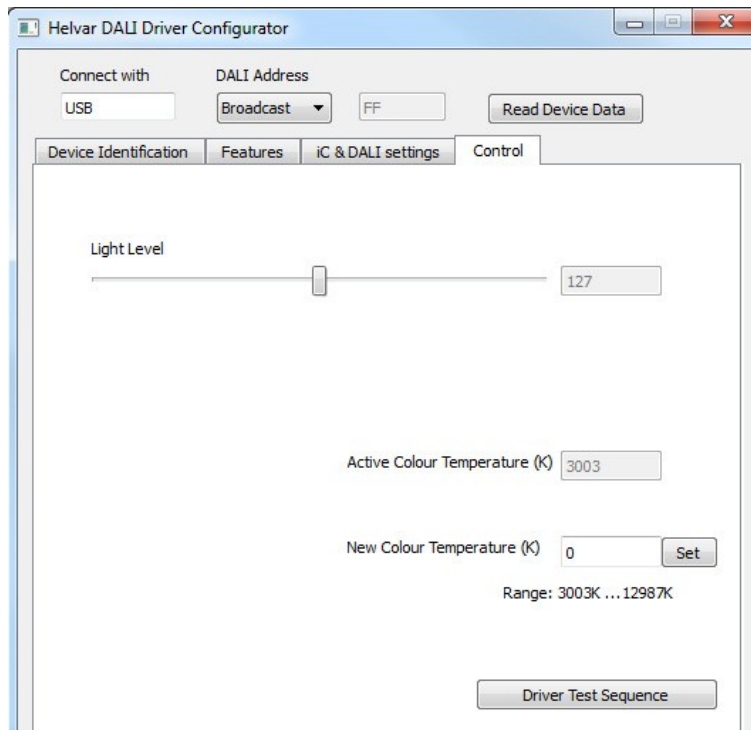


Figure 4. Control tab with CCT value set to 4987K