HASSEB DALI MASTER

hasseb DALI Master is an open software/hardware USB to DALI converter with integrated bus power supply. The device features a USB Human Interface Device (HID) so no drivers for the host PC are required. Easy to use DaliController.exe control software is used to send/receive DALI commands through USB.

CONTROL PROGRAM

DaliController.exe is easy to use software to discover the DALI bus, to make groups, to send specified messages and so on. The *hasseb Dali Master* device uses the USB Human Interface Device (HID) class for communication, so no driver needs to be installed.

The status bar at the bottom of the DaliController.exe software shows if a *hasseb DALI Master* device is detected. If the device is not found, go to the Monitoring tab and press the "Find Device" button.
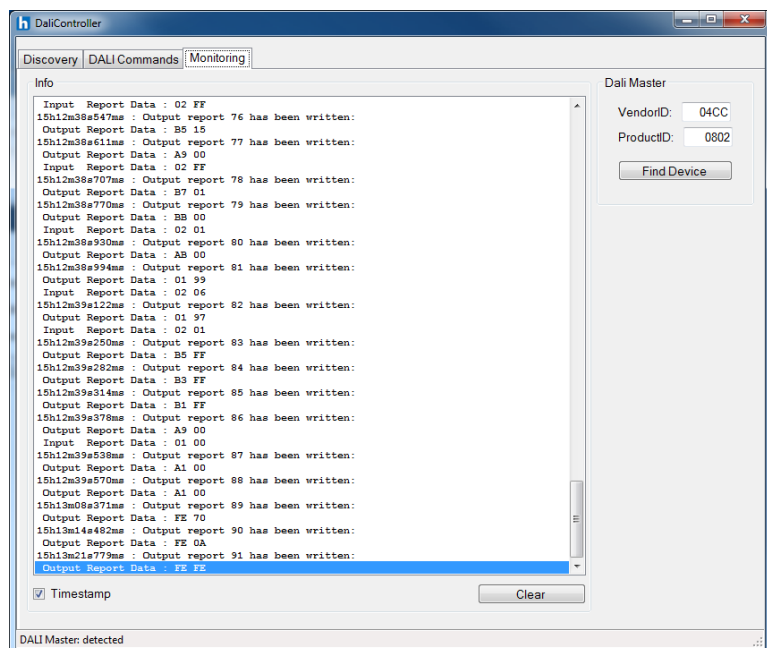

Figure 1. DaliController Monitoring tab

The Discovery tab is used to discover which DALI devices are connected on the DALI bus, and to automatically assign short addresses to these devices. The discovery process is started by pressing the "Discover" button.

When the "New initialization" checkbox is checked, existing assigned short and group address to DALI slaves are cleared and new short address will be assigned. Not having the checkbox active will maintain the assigned short addresses and remove no longer active DALI devices from the list in the DaliController.exe software.

Due to the nature of the randomization in the DALI specified bus discovery process for a new initialization, it is unpredicted which short address is assigned to which DALI device. After the discovery process, the assigned short addresses can be used in the DALI Commands tab to address DALI devices.
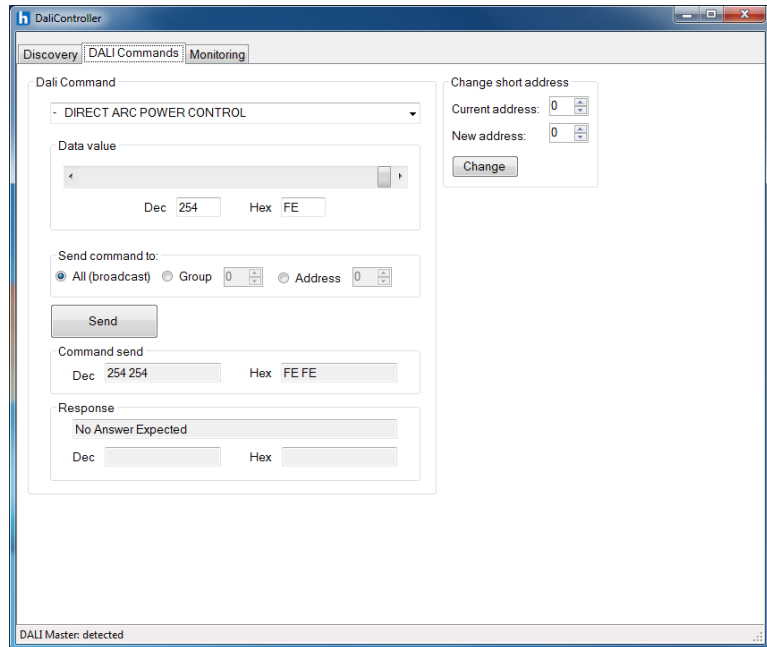

Figure 2. DaliController DALI Commands tab

DALI Commands tab is used to send DALI command on the bus. When "Send" button is pressed, the DaliController.exe application sends the DALI command to the *hasseb DALI Master* device, which transmits the command on the DALI bus. If a response is expected, the *hasseb DALI Master* sends this back to the PC and the response is displayed in the "Response" field.

BUS POWER

DALI bus requires a current limited 16 V / 200 mA bus power for operation. The DALI bus is powered by connecting the external 24 V power supply to the device. If the external power supply is not connected, the microprocessor is powered from the USB port and the DALI bus is not powered. However, the device is still fully functional if powering the DALI bus using external DALI bus power supply.

LEDS

There are four LEDs to indicate the status of the device.

- PWR LED is on when the device is powered.
- ACT LED blinks at the 1 second interval.
- TX LED indicates transmitted bytes.
- RX LED indicates received bytes.

SOURCE CODE AND SCHEMATICS

The device schematics and the source code written in C# for the DaliController.exe are available from the web address hasseb.fi/dali.

Source code for the firmware, written in C can be downloaded from NXP. The firmware is part of the NXP DALI SDK2.0, which can be downloaded from the web address:

http://www.nxp.com/documents/software/LPC11xx_LPC13xx_DALI_DevKit.zip

PROGRAMMING MODE

To download your own firmware to the device, short circuit jumper JP1 and boot the device. In programming mode, the device is visible to the host computer as an external USB memory. A custom firmware can be written with NXP LPCXpresso development tool. The compiled firmware can be transferred to the *hasseb DALI Master* device by drag and drop the firmware .bin file to the external USB memory.

Specifications	
Input voltage	24 ± 0.5 VDC
Maximum input current	0.4 A
Operating temperature	0 – 50 °C
IP class	21
Dimensions	65 mm x 65 mm x 30 mm
Weight	0.1 kg
Supported operating systems	Windows 7 / 8 / 10