Three starter kits enable faster LED applications development

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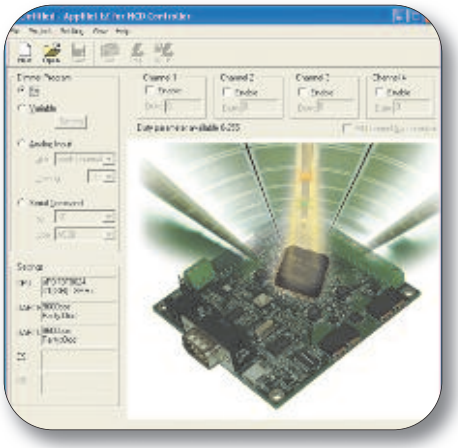
Ever more application areas open up for LEDs. Three new starter kits from NEC Electronics, provided with extensive example software, make it easier for developers to get started in a wide range of diverse applications.



With the Applilet EZ software provided with the starter kit, the microcontroller can be initialized on the PC per mouse click (source: NEC Electronics).

Indeed, the wide range of lighting technology possibilities of LEDs is readily praised, but at the same time it is completely forgotten that this diversity obviously also requires a corresponding high flexibility of the LED control. It is not just a matter here of colour mixing, remote controlling or compatibility of the LED light modules with various control devices; function monitoring and a reliable current control must also be guaranteed. In view of the diverse and in part clearly different practical demands, NEC Electronics has put together three starter kits for the wide range of needs. These kits make it as simple as possible for developers to get started in the world of LEDs.

The 78K0 - Shine It! starter kit is based on a 78K0 8-bit MCU equipped with a four-channel buck-boost DC/DC converter. The integrated converters serve as constant current source for the control of LEDs. The driver output of up to 350mA per channel is sufficient for direct control of RGB LEDs. However, the driver output can be increased via external output stages, thus enabling the connection of high-brightness LEDs or up to four LED strips. The connections for this are already provided on the board. The starter kit can be directly connected with a PC via USB and parameterized from there. In addition, the possibility exists to connect the board via DMX-512 to an overriding lighting control. With the Applilet EZ software provided with the starter kit, the microcontroller can be initialized on the PC per mouse click. In addition, it enables the user to create light scenarios, which can be displayed by the existing LEDs on the starter kit or externally connected LEDs. Furthermore, Applilet EZ automatically generates the C code and HEX code for the microcontroller and creates a project file for the free demo version of IAR Embedded Workbench provided with the kit. The second starter kit in this group is the 78K0IX2 LED kit.

The 78F0756 from the 78K0/Ix2 8-bit family is used here as microcontroller. The integrated 16-bit timers, which can generate four PWMs with 40 MHz based on an internal oscillator, as well as the intelligent linking of the three on-chip comparators and A/D converters with the timers, enable a simple and resource-saving implementation of controllers for LED control. In addition, the chip with integrated op-amp offers the possibility to amplify signals from photodiodes or light sensors and to read via an A/D converter. The Manchester decoder/encoder which is also integrated, simplifies the communication via DALI. Three LEDs are already mounted on the evaluation board of the 78K0IX2 LED kit; however, external LEDs can also be connected. The connection with a PC takes place per USB and, furthermore, the connection to lighting control devices is possible via DALI or DMX-512. In addition, Applilet EZ software, as already mentioned in connection with the Shine It! kit, is also included in this starter kit. This enables, among other things, initializing the microcontroller via mouse click, creating light scenarios and automatically generating the C code and the HEX file.

Finally, the 78K0-LIGHTCOMMS is offered purely as a control for subordinate lighting systems. This kit is based on an 8-bit microcontroller of the 78K0/Kx2 product family, which, among other things, features a variety of integrated peripheral components such as internal oscillators, timer, A/D converter, low voltage detection, etc. The kit can be operated as DALI or DMX master and can be directly connected with a PC via USB. With PC software included in the kit, DALI or DMX networks can be directly accessed and devices connected to the network can be controlled, parameterized or read via accompanying controller tools depending on the protocol.

In addition to extensive documentation, each of the three starter kits contains tools for calculation of inductances, numerous application examples and circuit diagrams. Furthermore, a code-limited demo version of IAR Embedded Workbench is included in the kit. An on-chip debugging can be carried out via the USB interface provided on the boards. ■