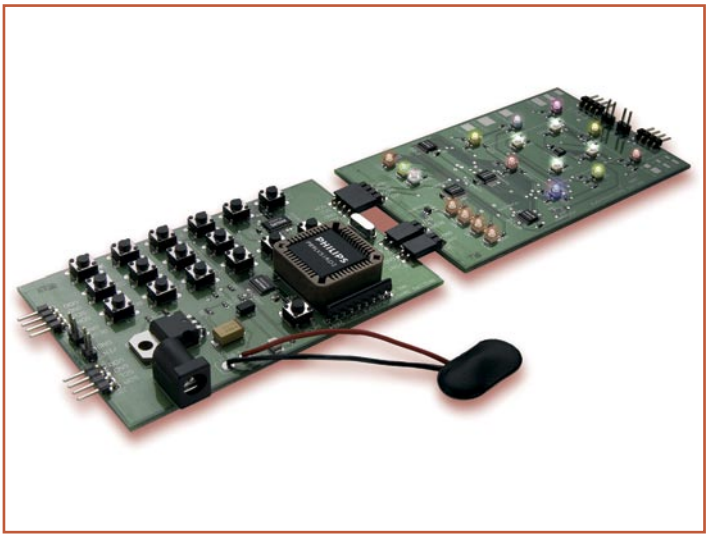
LED dimmer demo board

Demonstrates keypad control and LED lighting/color mixing. Embedded firmware lets the demo run without additional hardware or software.



Key features

- Versatile LED dimmer demonstrations
  - RGB LED color mixing
  - LED blinking/dimming
  - Backlight LED control
- Keypad control board
  - Microcontroller, I²C-bus controller and keypad controller
- LED display board
  - Four 8-bit I²C LED dimmers and one 4-bit I²C LED dimmer to demonstrate wide range of lighting functions
- Embedded firmware for out-of-the-box operation
- Downloadable support tools
  - Application notes and data sheets, IBIS model, source code for 8051-type MCU (in C, with drivers), "Hex" files, and third-party support tools
- Easy ordering: email I2C.support@philips.com

Quickly demonstrate I²C-bus capabilities for keypad control and LED lighting/color mixing

Semiconductors

This standalone, two-board set-up makes it quick and easy to demonstrate a wide range of keypad and LED functions. Built around a P89LV51RD2 8-bit microcontroller interfacing with a PCA9564 I²C-bus controller lets the demo run on its own, without additional hardware or software.

The demo is designed to show applications that require keypad control, LED lighting and/or color mixing. Specifically designed for mobile phone applications, the microcontroller's firmware emulates a cellular handset, letting engineers program a variety of fun light patterns and control the brightness of a virtual display. The firmware can also be used to emulate a battery discharge display.

Two-board set-up

The demo is composed of two boards: a keypad control board and an LED display board.

The keypad control board houses the microcontroller and the I²C-bus controller, plus a 16-key keypad controlled by a 16-bit I²C I/O expander. A 3.3 V voltage regulator provides the demo's internal power supply, using an external 9 V battery or 9 V mini-plug from a power pack (not included) for its source.

The LED display board has a total of nineteen LEDs: four white backlight LEDs, eight RGB LEDs, four red LEDs, a blue LED, a green LED, and a red/green bicolor LED. The 4-bit I²C LED dimmer controls backlight dimming. Three 8-bit I²C LED dimmers control the eight RGB LEDs and the fourth 8-bit I²C LED dimmer controls the rest of the LEDs, which can be used to demonstrate status or as miscellaneous indicators. Backlight brightness and RGB color mixing is controlled via the keypad.

Downloadable support tools

Supporting items, such as application notes, data sheets, IBIS model, source code for an 8051-type microcontroller (in C language, with drivers), "Hex" files and links to third-party tools are available via the Philips website: www.semiconductors.philips.com/logic/support/boards/leddemo

Order information

To order the kit, please email I2C.support@philips.com

PHILIPS

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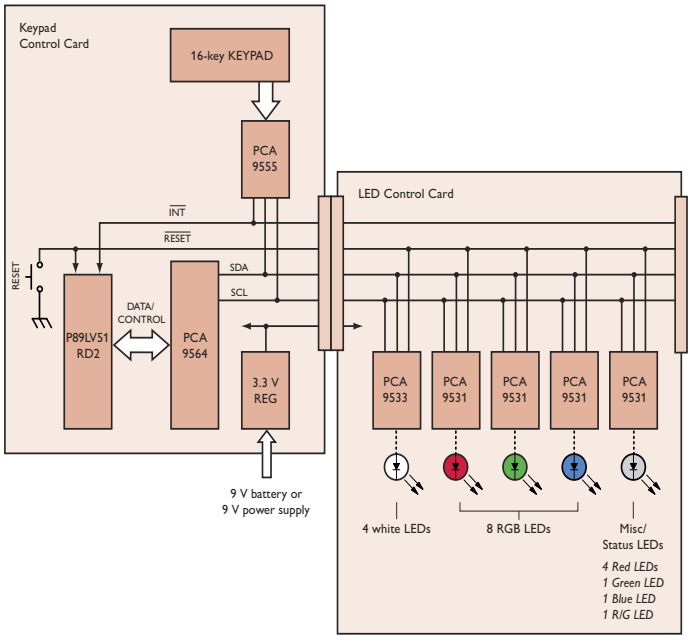

LED dimmer demo board

LED dimmer demonstration board components

Part number	Description	Function on evaluation board
P89LV51RD2BA	Microcontroller	Connects to 8-bit parallel port and control signals of PCA9564. Provides master control of other devices on the board and uses embedded firmware to emulate cellular phone or battery discharge.
PCA9564PW	I²C-bus controller	Interfaces between the P89LV51RD2 microcontroller and the I²C-bus.
PCA9555PW	I²C 16-bit GPIO	Controls the 16-key keypad. Each time a key is pressed, it sends an interrupt to the P89LV51RD2, initiating a read sequence from the master to identify the key.
PCA9531PW	I²C 8-bit LED dimmer	Three are used to control the eight RGB LEDs (one controller for each primary color); a fourth is used to control miscellaneous LEDs. All are programmed via the keypad.
PCA9533DP/01	I²C 4-bit LED dimmer	Controls the four white backlight LEDs. Brightness is controlled via the keypad.

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