

# GO Lighting Technologies Inc

## About LED Drivers

LED drivers control the amount of current and voltage supplied to light emitting diodes (LEDs). An LED driver IC is an integrated circuit (IC) that provides brightness control and backlighting colour control. Both are usually found in an LED driver circuit, which can be used to test an LED in order to maintain brightness and increase LED life.

There are many different types of LED drivers. Examples include white LED drivers, LED PWM drivers, RGB LED drivers, constant current LED drivers, and 7 segment LED drivers. A white LED driver provides white light for backlighting and offers very low noise with efficiencies as high as 90%. An LED PWM driver can be programmed through an I2C compatible interface for applications calling for colour, pattern and intensity programmability control.

In an RGB LED driver, all of the functions are controlled by software through the SPI interface and internal registers. A constant current LED driver's internal circuitry monitors the loop current of each LED and automatically adjusts the generated output DC voltage to the minimum value needed to produce highest forward voltage. A 7 segment LED driver is a LED display driver that uses a combinational logic circuit that accepts a 4-bit BCD input and generates seven output signals to control seven individual display segments.

Selecting LED drivers requires an analysis of performance specifications and special features. Some examples of white LED driver specifications include supply voltage, adjustable output current, and efficiency. An LED PWM driver can have a drive current per channel of 42 mA and shut down current of 1.5  $\mu$ A. An RGB LED driver may include a PWM dimmer that controls each color LED. A constant current LED driver has a charge pump that allows LED drivers to generate a regulated output current from a battery when the input voltage is between 2.4 V and 5.5 V.

Examples of constant current LED driver specifications include precise brightness control, current source, and switching frequency. A 7 segment LED driver often includes an input latch which can display and hold digits at the time a new count accumulates in the background.

LED drivers are designed and manufactured to meet most industry specifications. Specialized products are commonly available. For example, an LED display driver has one pin that provides continuous brightness control by setting a reference current through a variable resistor.

Typically, an LED display driver is TTL compatible, provides wide power supply operation, and can handle 15mA current. TTL is an acronym for transistor-transistor logic. In terms of applications, some LED drivers are used in portable devices such as cell phones, digital cameras, digital clocks, and counters. Other LED drivers are used in DVD and MP3 players.

-30-

### Contacts:

Ronald Content, President  
GO Lighting Technologies Inc.  
Tel: (866) 679-9452  
Fax: (416) 679-9452  
Email: [r.content@goenergyeffective.com](mailto:r.content@goenergyeffective.com)  
Web Site: [www.goenergyeffective.com](http://www.goenergyeffective.com)

Leonard (Len) Knott  
MCAN Communications  
416-488-1277 ext 2  
Email: [knott@mcancommunications.com](mailto:knott@mcancommunications.com)