Radio Controlled LED Lighting
NXP LPC1110 ARM Cortex-M0 Processor

Design Note #81

Direct off-line powered radio controlled lighting fixtures create a world of new applications while saving power too.

Radio Controlled Multi-Axis Lighting Head

Physically small, with a low quiescent current off-line power supply, this design functions in small confined spaces. Employing a 433MHz ASK radio receiver, this multi-axis track lighting motor controller allows fine control of track-head lighting position from remote locations. Visible-red laser selection circuitry keep power down until position adjustment is required.

NXP LPC1110 Cortex-M0

Low cost 433MHz radio transmitter-receiver systems use amplitude modulation to time-encode push button data. Being low cost, 433MHz radio receivers are subject to a variety of short comings including receiver timing variations, power system interference, and odd proximity coupling effects. NXP's 32 bit LPC1110 running at a clock frequency of 12MHz handily decodes received data signals with algorithms written in 'C'.

NXP LPC1110 Low Power Operation

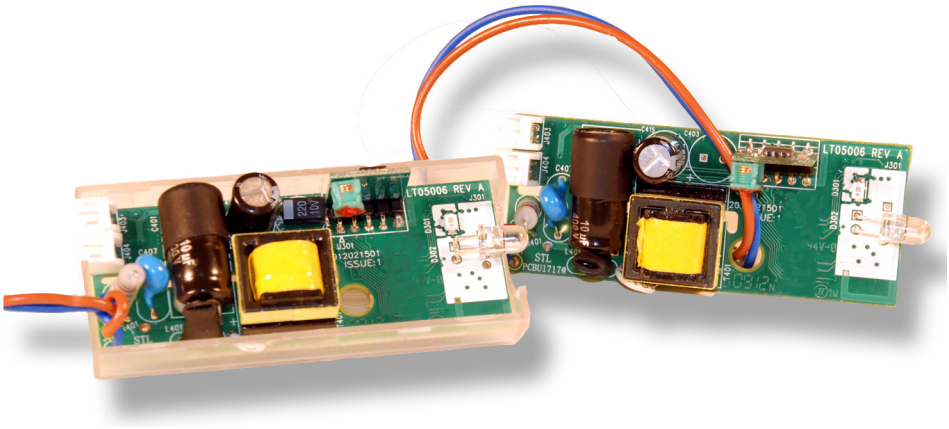
Green standards for commercial lighting requires that controllers idle at vanishingly small quiescent currents. Power control circuitry together with the LPC1110's on-chip low power features enable this design to achieve extremely low off-time power levels. Radio power switching, dual axis motor power switching, and low power off-line power system design all combine to keep this unit green.

Orchid Technologies: Wireless Lighting Design

The development of custom electronic products for our OEM clients is Orchid's entire business. Perhaps we can create a lighting solution for you too. The design of custom electronic products with rapid design cycles, demanding technical requirements, and unforgiving schedules sets us apart. Call Orchid Technologies today!

"We knew our original design did not work; we had no idea why. Orchid correctly analyzed the fact that our off-line power supply was interfering with our radio receiver. Orchid performed a complete re-design which works like magic!"

- President / CEO
Lighting Group



Orchid Technologies
Engineering & Consulting, Inc.

Custom Engineering From Concept to Production

147 Main Street, Maynard, MA 01754 www.orchid-tech.com 978-461-2000 fax: 978-461-2003