

▶ An Overview of the AC-DC and DC-DC Conve ....

Automatika >

Journal for Control, Measurement, Electronics, Computing and Communications Volume 53, 2012 - Issue 2: Special Issue on DC-DC Conversion and Active Rectifying



1.743 5 Views CrossRef citations to date Altmetric

Original scientific paper

# An Overview of the AC-DC and DC-DC Converters for LED Lighting Applications

# Pregled AC-DC i DC-DC pretvarača za primjene u LED rasvjeti

Asst. Prof. Manuel Arias, Ph.D., Aitor Vázquez, M.Sc. & Prof. Javier Sebastián, Ph.D. Pages 156-172 | Received 29 Dec 2011, Accepted 04 Apr 2012, Published online: 20 Jan 2017

**66** Cite this article ▶ https://doi.org/10.7305/automatika.53-2.154



References

**66** Citations

Metrics

Reprints & Permissions

冈 View PDF

# Abstract

High-Brightness Light Emitting Diodes (HB-LEDs) are considered the future trend in lighting not only due to their high efficiency and high reliability, but also due to their

other ou etc. Nev

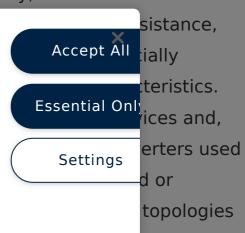
designe

Beside cons to drive

redesign have co

### About Cookies On This Site

We and our partners use cookies to enhance your website experience, learn how our site is used, offer personalised features, measure the effectiveness of our services, and tailor content and ads to your interests while you navigate on the web or interact with us across devices. You can choose to accept all of these cookies or only essential cookies. To learn more or manage your preferences, click "Settings". For further information about the data we collect from you, please see our Privacy Policy



In this paper, the main HB-LED characteristics will be explained, highlighting how they influence the design of their power supplies. After, the main topologies will be presented from the simplest to the most complex ones, analysing their advantages and disadvantages.

Svjetleće diode s visokom razinom svjetline (HB-LED) smatraju se budućim trendom u rasvjeti zahvaljujući ne samo visokom stupnju efikasnosti i pouz-danosti, nego i njihovim izvanrednim svojstvima: raznolikost boja, otpornost na udarce i vibracije i sl. Ipak, s ciljem potpunog iskorištenja prethodno spomenutih svojstava, potrebno je razviti nove, posebno osmišljene izvore napajanja. Osim toga, ponašanje im se posve razlikuje od ostalih tipova rasvjete što je potrebno uzeti u obzir pri projektiranju pretvarača za njihovo napajanje. Kao posljedica toga, mnoge su poznate topologije pretvarača optimirane ili preoblikovane posebno za primjenu u LED rasvjeti, a zadnjih nekoliko godina mnoge nove su se tek pojavile.

U ovom članku objašnjena su osnovna HB-LED svojstva naglašavajući njihov utjecaj na razvoj izvora napajanja. Uz to, prikazane su osnovne topologije, od najjednostavnijih do najsloženijih, ujedno analizirajući prednosti i nedostatke pojedinih.

Q Key words: AC-DC converters DC-DC converters LED Lighting

Q Ključne riječi: AC-DC pretvarači DC-DC pretvarači LED rasvjeta

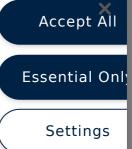
# Additional information

# Notes on contributors

#### About Cookies On This Site



We and our partners use cookies to enhance your website experience, learn how our site is used, offer personalised features, measure the effectiveness of our services, and tailor content and ads to your interests while you navigate on the web or interact with us across devices. You can choose to accept all of these cookies or only essential cookies. To learn more or manage your preferences, click "Settings". For further information about the data we collect from you, please see our <a href="Privacy Policy">Privacy Policy</a>



#### **Manuel Arias**

Manuel Arias Pérez de Azpeitia was born in Oviedo, Spain, in 1980. He received the M. Sc. degree in electrical engineering from the University of Oviedo, Gijón, Spain in 2005 and the Ph. D. degree in the same university in 2010. Since February 2005, he has been a Researcher in the Department of Electrical and Electronic Engineering, University of Oviedo, developing electronic systems for UPSs and electronic switching power supplies. Since February 2007, he has also been an Assistant Professor of electronics in the same University. His research interests include DC-DC converters, AC-DC converters and LED lighting.

### Aitor Vázquez

Aitor Vázquez was born in Oviedo, Spain, in 1984. He received the M.Sc. degree in telecommunication engineering from the University of Oviedo in 2009. He became a member of Power Supply System Group in 2010, where he is currently working toward the Ph.D. degree. His research interests include multiple input and output DC/DC conversion, power-factor corrector AC/DC converters and energy recovery systems.

#### Javier Sebastián

Javier Sebastián was born in Madrid, Spain, in 1958. He received the M.Sc. degree from the Polytechnic University of Madrid, Madrid, in 1981 and the Ph.D. degree from the Universidad de Oviedo, Gijón, Spain, in 1985. He was an Assistant Professor and an Associate Professor at both the Polytechnic University of Madrid and the Universidad de Oviedo. Since 1992, he has

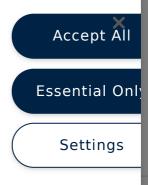
been w

DC con



#### About Cookies On This Site

We and our partners use cookies to enhance your website experience, learn how our site is used, offer personalised features, measure the effectiveness of our services, and tailor content and ads to your interests while you navigate on the web or interact with us across devices. You can choose to accept all of these cookies or only essential cookies. To learn more or manage your preferences, click "Settings". For further information about the data we collect from you, please see our <a href="Privacy Policy">Privacy Policy</a>



Downloa

People also read

Recommended articles

Cited by

Information for

**Authors** 

R&D professionals

**Editors** 

Librarians

Societies

Opportunities

Reprints and e-prints

Advertising solutions

Accelerated publication

Corporate access solutions

Open access

Overview

Open journals

Open Select

**Dove Medical Press** 

F1000Research

Help and information

Help and contact

Newsroom

All journals

Books

#### Keep up to date

Register to receive personalised research and resources by email



Sign me up











Copyright © 2024 Informa UK Limited Privacy policy Cookies Terms & conditions



Accessib

Registered 5 Howick P



About Cookies On This Site

We and our partners use cookies to enhance your website experience, learn how our site is used, offer personalised features, measure the effectiveness of our services, and tailor content and ads to your interests while you navigate on the web or interact with us across devices. You can choose to accept all of these cookies or only essential cookies. To learn more or manage your preferences, click "Settings". For further information about the data we collect from you, please see our <a href="Privacy Policy">Privacy Policy</a>

Accept All

Essential Only

Settings