

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
13 April 2006 (13.04.2006)

PCT

(10) International Publication Number
WO 2006/037265 A1

(51) International Patent Classification: **H05B 41/39**

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(21) International Application Number:
PCT/CN2005/001584

(22) International Filing Date:
28 September 2005 (28.09.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0421901.0 1 October 2004 (01.10.2004) GB

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

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(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

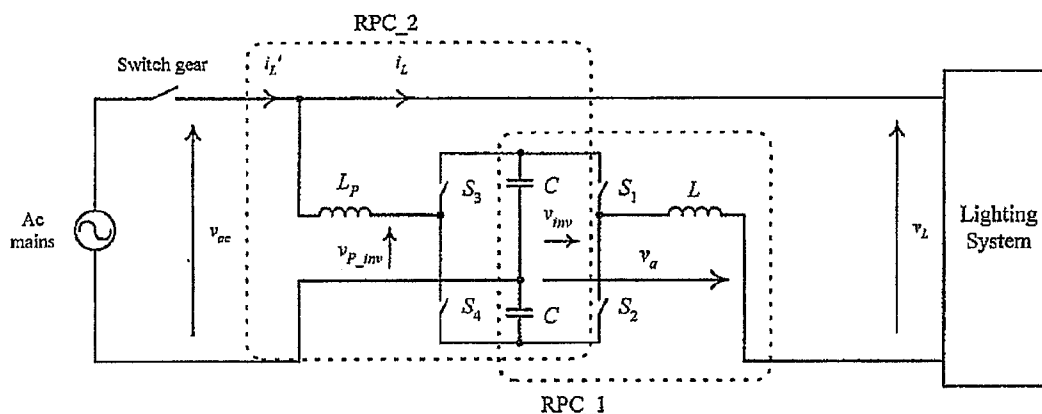
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Published:
— with international search report

[Continued on next page]

(54) Title: DIMMABLE LIGHTING SYSTEM



(57) Abstract: There is disclosed a reactive power controller (RPC) for dimming AC mains lighting systems that use ballasts, for example magnetic ballasts. In one embodiment, a DC/AC converter is used to convert a DC voltage, from a DC voltage source, to an AC voltage that is out of phase with current flowing through the RPC. For example, if the AC voltage is 90° or 270° out of phase with the current then the RPC will appear, to an AC mains lighting system, to be effectively a capacitor or an inductor, thus increasing the effective impedance of the mains supply to the magnetic ballast. The RPC creates a controllable AC voltage at mains frequency, so that the net voltage to the load is adjustable to dim the load. The net voltage is the vectorial sum of the AC mains voltage and the AC voltage created by the RPC. A second RPC may be used to improve the power factor of the AC mains lighting system. The second RPC generates or absorbs the required reactive power of the whole system, so that the input power factor of the AC mains lighting system becomes substantially unity. In an advantageous embodiment, the first and second RPCs are connected to share a common DC voltage source.

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