# ${\bf (19)}\ World\ Intellectual\ Property\ Organization$

International Bureau



(43) International Publication Date 16 December 2004 (16.12.2004)

**PCT** 

US

# (10) International Publication Number WO 2004/110031 A3

(21) International Application Number:

PCT/US2004/016507

(22) International Filing Date: 26 May 2004 (26.05.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 10/449,917 30 May 2003 (30.05.2003)

(71) Applicant (for all designated States except US): ADC DSL SYSTEMS, INC. [US/US]; 13625 Technology Drive, Eden Prairie, MN 55344-2252 (US).

(72) Inventors; and

- (75) Inventors/Applicants (for US only): LOMAX, JR., Charles Weston [US/US]; 8309 Kestrel Drive, Raleigh, NC 27615 (US). AMMANN, Christopher Tad [US/US]; 4505 Fox Road, Raleigh, NC 27616 (US). POWERS, Randall L. [US/US]; 3001 Oxbow Ct., Raleigh, NC 27613 (US).
- (74) Agent: LUNDBERG, Scott V.; P.O. Box 581339, Minneapolis, MN 55458-1339 (US).

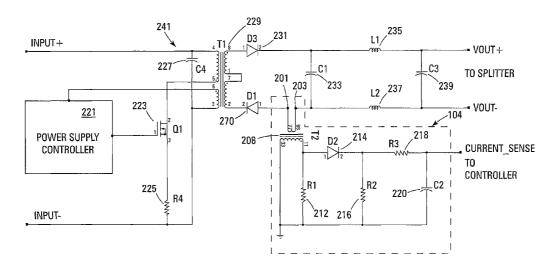
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,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

### **Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report:
  9 March 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CURRENT SENSE CIRCUIT IN A LINE POWERED NETWORK ELEMENT



(57) Abstract: Managing line power for network elements in an access network. In one embodiment a current sense system in a line power network is disclosed. The current sense system includes a power supply, a splitter and a sense circuit. The power supply is adapted to supply output current to a twisted pair drop. The splitter is adapted to combine communication signals and the output current on a twisted pair drop. The sense circuit is coupled to sample the output current of the power supply between the power supply and the splitter. The sense circuit is further adapted to output a sense signal that is representative of the output current.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/16507

A. CLASSIFICATION OF SUBJECT MATTER			
IPC(7) : HO4M 1/00, 9/00, 11/00 US CL : 379/93.01, 93.05, 93.06, 93.09, 387.01, 399.01, 402, 403, 413.01			
According to International Patent Classification (IPC) or to both national classification and IPC			
B. FIELDS SEARCHED			
Minimum documentation searched (classification system followed by classification symbols) U.S.: 379/93.01, 93.05, 93.06, 93.09, 387.01, 399.01, 402, 403, 413.01			
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched			
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)			
C. DOCUMENTS CONSIDERED TO BE RELEVANT			
Category *	Citation of document, with indication, where ap	propriate, of the relevant passages	Relevant to claim No.
XP	US 2003/0185385 A1 (BOUDREAUX, JR. et al) 02 October 2003 (02.10.2003), 5-10, 14,		
A	paragraph [0027] through paragraph [0049] and 24 US 6,647,116 B1 (GAY) 11 November 2003 (11.11.2003) column 2, line 62 through column 11, line 5		and 24 1-25
A	US 6,606,383 B1 (ROBINSON et al) 12 August 2003 (12.08.2003), column 3, line 23 through column 5, line 39		1-25
Further documents are listed in the continuation of Box C. See patent family annex.			
"A" document of particu	pecial categories of cited documents:  t defining the general state of the art which is not considered to be talar relevance  plication or patent published on or after the international filing	"T" later document published after the int date and not in conflict with the appli the principle or theory underlying the "X" document of particular relevance; the considered novel or cannot be considered.	cation but cited to understand invention cannot be
date	pheaton of patent phononica on of after the international imag	step when the document is taken alon	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)		"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	
"O" document referring to an oral disclosure, use, exhibition or other means		"&" document member of the same patent	family
"P" document published prior to the international filing date but later than the			Ž
Date of the actual completion of the international search		Date of mailing of the international search report	
05 December 2005 (05.12.2005)  Name and mailing address of the ISA/US  Authorized officer			
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201		Telephone No. 571-272-4550	