

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
17 August 2006 (17.08.2006)

PCT

(10) International Publication Number  
**WO 2006/086622 A3**

(51) International Patent Classification:  
**G05B 11/01** (2006.01)

(21) International Application Number:

PCT/US2006/004718

(22) International Filing Date:

10 February 2006 (10.02.2006)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

11/056,729 11 February 2005 (11.02.2005) US  
11/055,842 11 February 2005 (11.02.2005) US

(71) Applicant: **ORTRONICS, INC.** [US/US]; 125 Eugene O'Neill Drive, New London, CT 06320 (US).

(72) Inventors: **AEKINS, Robert, A.**; 7 Hopkins Court, Branford, CT 06405 (US). **DUPUIS, Joseph, E.**; 7 Redbrook Lane, Ledyard, CT 06339 (US). **VENDITTI, Jay, v.**; 8 Frog Hollow Road, East Lyme, CT 06339 (US). **MARTICH, Mark, E.**; 5 Overlook Road, Barrington, Rhode Island 02806 (US).

(74) Agents: **NABULSI, Basam, E.** et al.; McCarter & English, LLP, Cityplace I, 185 Asylum Street, 36th Floor, Hartford, CT 06103-3495 (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, KM, KN, 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.

(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).

**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:  
28 June 2007

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: APPARATUS FOR COMMUNICATION OVER NETWORK TRANSMISSION MEDIUM

(57) Abstract: An apparatus/system for use in coupling power from a power supply to a device over a network transmission medium is provided. The coupling apparatus/system generally includes one or more common mode chokes that feature a first winding and a second winding, the first winding being electrically connected between the first terminal of the power supply and the first electrical conductor of the network transmission medium, and the second winding being coupled between the first terminal of the power supply and the first electrical conductor of the network transmission medium. The common mode choke generally includes at least one core for coupling the first and second windings of the one or more common mode chokes. An RJ45 to 110 DDC modular connector may be connected to a printed circuit board used to transfer high speed signals for telecommunication interface media connections. The printed circuit board is configured to help reduce near-end crosstalk (NEXT) without compromising impedance. DC power is coupled upon the signal line by utilizing a wideband high impedance common mode choke design.



WO 2006/086622 A3

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/04718

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC: **G05B 11/01**( 2006.01)

USPC: 340/310.11,310.17

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. : 340/310.11, 310.17

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)  
EAST

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,257,006 (GRAHAM et al.) 26 October 2993, figure 2, abstract	1-29

Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents:

<p>“A” document defining the general state of the art which is not considered to be of particular relevance</p> <p>“E” earlier application or patent published on or after the international filing date</p> <p>“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)</p> <p>“O” document referring to an oral disclosure, use, exhibition or other means</p> <p>“P” document published prior to the international filing date but later than the priority date claimed</p>	<p>“T”</p> <p>“X”</p> <p>“Y”</p> <p>“&amp;”</p>	<p>later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>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</p> <p>document member of the same patent family</p>
---	---	---

Date of the actual completion of the international search

26 March 2007 (26.03.2007)

Date of mailing of the international search report

**26 APR 2007**

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (571) 273-3201

Authorized officer

Julie Lieu

**Jacqueline A. Whitfield  
Special Project Asst.**

Telephone No. 571-272-2600

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/04718

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:  
Please See Continuation Sheet

1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2.  As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of any additional fees.
3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: 1-29

- Remark on Protest**
- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
  - The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
  - No protest accompanied the payment of additional search fees.

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US06/04718

**BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING**

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-29, drawn to signal over the power line classified in US Class 340 subclass 310.11, PC G05B 11/01.

Group II, claim(s) 30-56, drawn to power distribution system classified in US Class 340 subclass 693.1, IPC G08B 23/00.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: They are two distinct inventions.