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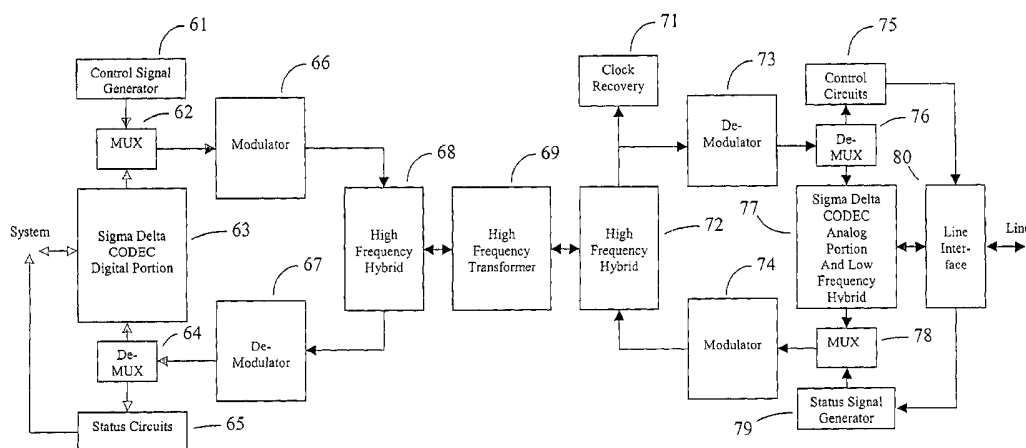
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: DATA ACCESS ARRANGEMENT USING A HIGH FREQUENCY TRANSFORMER FOR ELECTRICAL ISOLATION



(57) Abstract: An electrical isolation barrier for use in a Data Access Arrangement uses a high frequency (HF) transformer (24) to provide isolation. An input signal (21), which may be analog or digital, is connected to a modulator (22). The analog output of the modulator (22) is connected to the input of the HF transformer (24). The output of the HF transformer (24) is connected to the input of a demodulator (26). Simple amplitude modulation can be used in the modulator (22) to modulate the input signal (21) to the frequency range of operation of the HF transformer (24). A simple low pass filter may be incorporated in the demodulator (26) to remove harmonic distortion caused by the HF transformer (24). The output signal (27) of the demodulator (26) is substantially the same as input to signal (21).

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/14949

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04B 3/00; H04L 25/00
US CL : 375/258; 370/535

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. : 375/258; 370/535

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 appropriate, of the relevant passages	Relevant to claim No.
X	US 6,385,235 B1 (Scott et al) 7 May 2002 (07.05.2002), Figs. 2, 7, 16 column 4, lines 17-19, 54-67; column 8, lines 6-65; col. 10, lines 1-37, lines 50-55; col. 21, lines 10-65; col. 22, lines 11-67)	1, 2, 6-14, 16, 17, 21, 22, 25-27, 30, 33-35, 43, 50, 51
A	US 6,385,235 B1 (Scott et al) 7 May 2002 (07.05.2002), entire document.	15, 20, 21, 23, 28, 31, 36-39, 49
Y	US 6,021,158 (Schurr et al) 1 Feb 2000 (07.02.2000), col. 7, lines 40-55	2, 4, 5
Y	US 4,912,723 (Verbanets) 27 Mar 1990 (27.03.1990), col. 19, lines 26-67; col. 20, lines 1-67; col. 33, lines 3-67	3, 5, 30, 48
Y	US 5,640,433 (Szczbak et al) 17 Jun 1997 (17.06.1997), col. 3, lines 34-35; col. 2, lines 15-65	18, 19, 24, 32, 35
X, Y	US 6,137,827 (Scott et al) 24 Oct 2000 (24.10.2000), Fig. 2, (col. 7, lines 1-67, col. 8, lines 9-64)	26, 29
X	US RE35,104 (Murakami et al) 28 Nov 1995 (28.11.1995), col. 2, lines 27-67; col. 3, lines 1-9	40-42, 44-46
Y	US 5,123,012 (Suzuki et al) 16 Jun 1992 (16.06.1992), col. 3, lines 10-25	47

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:	"T" 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
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" 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
"E" earlier application or patent published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/14949

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

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

1. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claim 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. ☐ Claim Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of Item 2 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 an additional fee, this Authority did not invite payment of any additional fee.
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.:

Remark on Protest

☐
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

PCT/US03/14949

BOX II. 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) 1-39, 48-52, drawn to an electrical isolation barrier.

Group II, claim(s) 40-47, drawn to a Multiplexor.

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: The isolation barrier for claims in Group I pertains to a transformer whereas the claims in Group II pertains to a combination technique such as multiplexing.