(54) Title: METHOD FOR DETERMINING ACTIVE INPUT ELEMENTS OF AN INPUT ARRANGEMENT AND INPUT AR-
RANGEMENT

Fig. 1

(57) Abstract: The invention relates in an aspect A to a method for determining active input elements (S1a, S2a) of an input arrangement (10), comprising - providing input elements (S1a to S2b) that are connected according to a matrix arrangement, - providing within the matrix arrangement at least two drive lines (L1, L2) that are connected to a respective driving circuit (2, 4), - providing within the matrix arrangement at least two sense lines (Ca, Cb) that may be used to detect active input elements (S1a, S2a), - providing within the matrix arrangement serial connections (SCI to SC4) each comprising one of the input elements (S1a, S2a) and a resistor (Rla) and each serial connection (SCI to SC4) being connected to a respective one of the drive lines (L1, L2) and to a respective one of the sense lines (Ca, Cb), - providing pull resistors (Ra, Rb) that connect the sense lines (Ca, Cb) to a first potential, and - using a control device for the driving circuits that drives an active drive line (L1) to a second potential that is different from the first potential and that drives a non active drive line (L2) or non active drive lines to the first potential or to a potential having an absolute offset value from the first potential that is at most 50 percent or at most 10 percent of the absolute value of the difference of the first potential and of the second potential.
A. CLASSIFICATION OF SUBJECT MATTER

INV. H03M11/00 H03M11/20

ADD.

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)

H03M G01H H03K G06F H01H G06K H04M G10H

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)

EPO-Internal, WPI Data, INSPEC, COMPENDEX, IBM-TDB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
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<td>EP 1 876 711 AI (TYCO ELECTRONICS CANADA LTD [CA]) 9 January 2008 (2008-01-09)</td>
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Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

**X** 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

**Y** document of particular relevance; the claimed invention cannot be considered obvious when the document is taken alone

**T** 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 into account with the claimed invention

**A** document member of the same patent family

Date of the actual completion of the international search: 7 July 2014

Date of mailing of the international search report: 18/09/2014

Name and mailing address of the ISA:

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NL - 2280 HV RIJSWIJK
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Fax: (+31-70) 340-3016

Authorized officer: Broxa, Anna-Mari a
**INTERNATIONAL SEARCH REPORT**

**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:

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see additional sheet
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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 fees, this Authority did not invite payment of 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.:

   1-20

**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.
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-20
   Determination of active input elements of an input arrangement.

2. claims: 21-42
   Input arrangement and input method.

3. claims: 43-76
   Control of an optical element, especially with regard to brightness.

4. claims: 77-93
   Transmission of key codes.
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