Title: A METHOD AND APPARATUS FOR DRIVING AN ELECTRONIC DISPLAY AND A SYSTEM COMPRISING AN ELECTRONIC DISPLAY.

Abstract: A device (B) is described for driving a bistable display (A). The device includes a processor (150) for receiving an input signal indicative for a desired luminance of said at least one pixel. The device also includes a controller (100) for determining a sequence of voltage levels to achieve a transition from a present luminance to the desired luminance. The device further includes a voltage generator (108) for generating the sequence of voltage levels. A portion of the sequence is selected from a plurality of mutually different sequence portions, to achieve mutually different luminance transitions. At least a first and a second of this plurality of sequence portions mutually have a same set of voltage levels and have the voltage levels from that set occurring the same number of times, but have the voltage levels in that set occur in a mutually different order.
before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
INV. G09G3/34

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)
G09G

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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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>X #0 2004/090857 AI (E INK CORP [US]; AMUNDSON KARL R [US]; ZEHNER ROBERT W [US]; KNAJAN AR) 21 October 2004 (2004-10-21) paragraph [0001]</td>
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Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:
- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent published on or after the international filing date
- "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)
- "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

Date of the actual completion of the international search
20 June 2012

Date of mailing of the international search report
17/10/2012

Name and mailing address of the ISA/
European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
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Authorized officer
Gartlan, Michael

Form PCT/ISA210 (second sheet) (April 2005)
### Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

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).

### 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:

see additional 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 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.:

   1-3, 9, 11-14, 18

**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.
<table>
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<th>Patent family member(s)</th>
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<td>US 2005001812 AI</td>
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<td>WO 2004090857 AI</td>
<td>21-10-2004</td>
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</table>
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-3, 9, 11-14, 18

The device according to claim 2, wherein the reset luminance of the reset state is equal to the first or the second luminance to improve the reset performance

2. claims: 4, 5

The device according to claim 2, wherein the reset subsequence has a first reset subsequence portion and a second reset subsequence portion, wherein in the first reset subsequence portion on the luminance of the at least one pixel is increased if the estimated present luminance is more than a first threshold lower than an intermediate value and wherein the luminance is decreased if the estimated present luminance is more than a second threshold higher than the intermediate value, and wherein in the second reset subsequence portion on the luminance of the pixel is controlled towards the reset state to avoid visual artifacts by making the reset sequence dependent on the estimated present luminance.

3. claims: 6-8, 15-17

The device according to claim 2, wherein the second subsequence comprises a first, preparatory portion having a transition of the reset state having the reset luminance to a preparatory intermediate value and a second, final portion following the first, preparatory portion on that results in a transition of the luminance from said preparatory intermediate value to said desired value to enable the setting phase to be interrupted/modified allowing faster display updates.

4. claim: 10

The device according to claim 1, comprising: a row driver configured to provide a row voltage; a row electrode connected to the row driver; a column driver configured to provide at least three column voltages; a column electrode connected to the column driver; a common electrode driver configured to provide at least two common voltages; a common electrode connected to the common driver; a pixel connected between the column electrode and the common electrode; and a control driver configured to control timing of application of the common voltage levels relative to the common voltage levels to provide N effect pixel voltage levels across the pixels to increase the possibilities to select the voltage difference over the
electrodes of the pixel.