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[Continued on next page]

(54) **Title:** HVAC CONTROLLER

(57) **Abstract:** An HVAC controller (10; 20) is described that is configured to be more intuitive and user friendly to program and operate than convention HVAC controllers. In some instances, the HVAC controller (10; 20) may include a touch screen interface (14) that provides greater flexibility in displaying information to the user and/or soliciting information from the user.

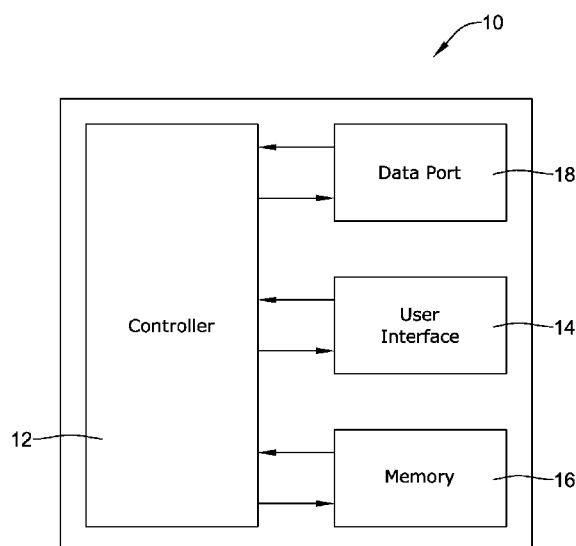


Figure 1



(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR,  
NE, SN, TD, TG).

— *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))*

**Published:**

— *with international search report (Art. 21(3))*

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3 September 2009

## INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/US2008/084787****A. CLASSIFICATION OF SUBJECT MATTER****F24F 11/02(2006.01)i, F24F 1/00(2006.01)i**

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)

IPC F24F 11/00, 11/02; G05D 23/00, 23/19; G06F 3/00, 3/048; G06D 23/19

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models since 1975

Japanese utility models and applications for utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS (KIPO Internal) &amp; Keywords: touch screen, touch sensitive, display

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KR 10-2007-0080291 A (LG ELECTRONICS INC.) 10 August 2007 See pages 4 to 12 and figures 4 to 32.	1, 3, 4, 6-11
Y		2, 5
Y	KR 10-2007-0095712 A (WIDERMAX CO.) 1 October 2007 See paragraphs 34, 35, 56, and figures 1 to 3.	2, 5
A	JP 2004-003831 A (TOSHIBA KYARIA KK.) 8 January 2004 See the whole document.	1-23
A	KR 10-2007-0090362 A (LG ELECTRONICS INC.) 6 September 2007 See the whole document.	1-23
A	US 6595430 B1 (DIPAK J. SHAH et al) 22 July 2003 See the whole document.	1-23



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 but 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 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

"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

"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

"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

"&amp;" document member of the same patent family

Date of the actual completion of the international search

16 JULY 2009 (16.07.2009)

Date of mailing of the international search report

**16 JULY 2009 (16.07.2009)**

Name and mailing address of the ISA/KR

Korean Intellectual Property Office  
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# INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/US2008/084787**

## 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:

This ISA found multiple inventions as follows:

Group I, claims 1-11, drawn to a touch screen dot matrix display of an HVAC controller displaying an indicator that provides a qualitative indication; and

Group II, claims 12-23, drawn to a thermostat displaying help button on a touch screen dot matrix display wherein the help button displays a context sensitive help screen.

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 reason: the indicator providing the qualitative indication and the help button providing additional information regarding the operating parameter have no technical relation to each other.

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 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**

Information on patent family members

International application No.

**PCT/US2008/084787**

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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