Title (en)

ENERGY MONITORING SYSTEM FOR A HEAT PUMP

Title (de)

ENERGIEÜBERWACHUNGSSYSTEM FÜR EINE WÄRMEPUMPE

Title (fr)

SYSTÈME DE SURVEILLANCE D'ÉNERGIE POUR UNE POMPE À CHALEUR

Publication

EP 4375592 A1 20240529 (EN)

Application

EP 23211784 A 20231123

Priority

IT 202200024204 A 20221124

Abstract (en)

An energy monitoring system for a heat pump (100), having a compressor (101), an evaporator (102), an expansion valve (103), and a condenser (104), which form a refrigerant cycle through which the working fluid circulates, comprises: a sensing system, for detecting a first temperature parameter and a second temperature parameter; a memory containing reference data representative of mathematical relations which link the input power and/or the output cooling power to the first and second temperature parameter; a processing unit, for deriving, in real time, an estimated value of the input power and/or of the cooling power from the heat pump (100), based on the first and the second temperature parameter and based on the reference data. The evaporator (102) receives a heat flux in an adjoining space from a fluid (A). The first temperature parameter is representative of a temperature of the working fluid at the evaporator (102) or of the temperature of the fluid (A) which releases the heat flux to the evaporator; the second temperature parameter is representative of the temperature of the exchanging fluid or of the temperature of the working fluid at the condenser.

IPC 8 full level

F25B 49/02 (2006.01)

CPC (source: EP)

F25B 49/02 (2013.01); F25B 2500/19 (2013.01); F25B 2700/2116 (2013.01); F25B 2700/21161 (2013.01); F25B 2700/2117 (2013.01); F25B 2700/21171 (2013.01)

Citation (applicant)

- CN 109086447 A 20181225 - GREE ELECTRIC APPLIANCES INC ZHUHAI
- KIM WOOHYUN ET AL.: "APPLIED THERMAL ENGINEERING", vol. 191, PERGAMON, article "Fault detection and diagnostics analysis of air conditioners using virtual sensors"

Citation (search report)

- [A] EP 3889518 A1 20211006 - QINGDAO ECONOMIC AND TECH DEVELOPMENT ZONE HAIER WATER HEATER CO LTD [CN], et al
- [XI] GUO YABIN ET AL: "Development of a virtual variable-speed compressor power sensor for variable refrigerant flow air conditioning system", INTERNATIONAL JOURNAL OF REFRIGERATION, ELSEVIER, AMSTERDAM, NL, vol. 74, 28 September 2016 (2016-09-28), pages 73 - 85, XP029897854, ISSN: 0140-7007, DOI: 10.1016/J.IJREFRIG.2016.09.025
- [XI] KIM WOOHYUN ET AL: "Fault detection and diagnostics analysis of air conditioners using virtual sensors", APPLIED THERMAL ENGINEERING, PERGAMON, OXFORD, GB, vol. 191, 13 March 2021 (2021-03-13), XP086568503, ISSN: 1359-4311, [retrieved on 20210313], DOI: 10.1016/J.APPLTHERMALENG.2021.116848

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA

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