

Title (en)

Method of stabilizing gas burner combustion using Fast-Fourier-Transformation (FFT)

Title (de)

Verfahren zur Stabilisierung der Verbrennung eines Gasbrenners mittels Fast-Fourier-Transformation (FFT)

Title (fr)

Procédé de stabilisation de la combustion d'un brûleur à gaz avec Fast-Fourier-Transformation (FFT)

Publication

EP 2829803 A1 20150128 (EN)

Application

EP 13177970 A 20130725

Priority

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Abstract (en)

Method for operating a gas burner (10) having an air fan (14), a gas valve (17), a gas duct (16), an electrical or electronic sensor (13) coupled to the gas duct and a controller (20). The defined mixing ratio of the gas/air mixture is controlled - by comparing an actual value of a signal provided by the sensor (13) with a nominal value and - by generating a control variable for the gas valve (17) on basis of the control deviation between the actual value and the nominal value, - wherein the signal provided by the sensor (13) is in addition used to determine if the combustion is stable or unstable by processing the time-based signal provided by the sensor (13) in such a way that: -- the time-based signal provided by the sensor (13) is sampled at a defined sampling rate, -- a Fast Fourier Transformation is applied to the samples of the time-based signal thereby generating a frequency-based signal, -- it is determined if the amplitude of the frequency-based signal within a defined frequency range is larger than a defined threshold, wherein --- stable combustion is determined when the amplitude of the frequency-based signal within the defined frequency range is lower than the defined threshold, and wherein --- unstable combustion is determined when the amplitude of the frequency-based signal within the defined frequency range is larger than the defined threshold.

IPC 8 full level

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CPC (source: EP)

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Citation (applicant)

- EP 1084369 B1 20030115 - HONEYWELL BV [NL]
- EP 1179159 B1 20041124 - HONEYWELL BV [NL]
- WO 2009089886 A2 20090723 - HONEYWELL TECHNOLOGIES SARL [CH], et al
- EP 2466202 A2 20120620 - VAILLANT GMBH [DE]

Citation (search report)

- [Y] EP 0682210 A1 19951115 - YAMATAKE HONEYWELL CO LTD [JP]
- [Y] EP 2184467 A1 20100512 - MITSUBISHI HEAVY IND LTD [JP]
- [AD] WO 2009089886 A2 20090723 - HONEYWELL TECHNOLOGIES SARL [CH], et al

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 MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

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