

Title (en)

System and method for controlling a fan insufflating air into a protected space, especially in fire ventilation for the protection of escape routes

Title (de)

System und Verfahren zur Steuerung eines Lüfters, der Luft in einen geschützten Raum einbläst, insbesondere zur Brandbelüftung zum Schutz von Fluchtwegen

Title (fr)

Système et procédé de commande d'un ventilateur insufflant de l'air dans un espace protégé, notamment en ventilation coupe-feu pour la protection de voies d'évacuation

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Application

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Priority

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Abstract (en)

[origin: EP2910865A1] The object of the invention is a system for controlling a fan insufflating air into a protected space, especially in fire ventilation for the protection of escape routes, comprising a controller equipped with a processor with a high computational power and a memory, designed and configured to control the said fan by setting frequency  $U$  of the inverter controlling the motor of said fan and connected to this inverter, and in addition connected to a pressure sensor for measuring pressure difference  $P$  between the protected space and a reference pressure, characterised in that the said controller is configured and programmed to perform the following steps: a) registering, in the memory of the controller, parameters of the fan, determined in time; b) registering, in the memory of the controller, parameters of the protected space, variable in time; c) determining the value of parameter  $a(k)$  at current moment  $k$  as a function of  $a(k) = P(k) / U^2(k)$ ; d) determining the value of control  $U(k+1)$  at a subsequent moment of time  $k+1$ , by solving the task of non-linear optimisation by means of an iterative method, the feasible point of the iterative method being assumed as  $U_{start}(k+1) = \sqrt{P(k) / a(k)}$ ; e) setting the so determined value of control  $U(k+1)$  as a frequency of the inverter controlling the fan motor. The object of the invention is also a method for controlling a fan insufflating air into a protected space, especially in fire ventilation for the protection of escape routes.

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