

Title (en)

ACTUATOR WITH TRANSFER OF ANGULAR MOMENTUM FOR THE ATTITUDE CONTROL OF A SPACECRAFT

Title (de)

AKTUATOR MIT ÜBERTRAGUNG VON DREHIMPULS ZUR LAGEREGLUNG EINES RAUMSCHIFFS

Title (fr)

ACTIONNEUR A TRANSFERT DE MOMENT CINETIQUE POUR LE CONTROLE D'ATTITUDE D'UN ENGIN SPATIAL

Publication

EP 2222566 A1 20100901 (FR)

Application

EP 08851272 A 20081118

Priority

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- FR 0759224 A 20071122

Abstract (en)

[origin: WO2009065818A1] An actuator for the attitude control of a spacecraft comprises a first flywheel (1) rotated by a motor (5) and a second flywheel (2). The two flywheels (1, 2) are rotationally moveable about an axis (61) and are mechanically coupled by mechanical coupling means (4) imposing between a rate of rotation ω_1 of the first flywheel (1) and a rate of rotation ω_2 of the second flywheel (2) a ratio $R = \omega_2 / \omega_1$ which is negative on the one hand and continuously modifiable by the coupling means (4) in response to a command on the other hand so as to modify the total angular momentum of the actuator with constant total kinetic energy of the wheels. In one embodiment, the two flywheels have the same inertia and are coupled by means of a toroidal variator whose ratio R varies between -3 and $-1/3$. In order to store and retrieve energy at constant angular momentum, the motor (5) drives the flywheels (1, 2) in rotation and operates as a generator so as to brake said flywheels.

IPC 8 full level

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CPC (source: EP US)

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Citation (search report)

See references of WO 2009065818A1

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