

Title (en)
POLYPHASE BRUSHLESS DC MOTOR

Title (de)
MEHRPHASIGER KOLLEKTORLOSER GLEICHSTROMMOTOR

Title (fr)
MOTEUR A COURANT CONTINU POLYPHASE SANS COLLECTEUR

Publication
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Application
EP 03735584 A 20030610

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Abstract (en)
[origin: WO2004004111A1] Disclosed is a polyphase brushless DC motor (20) comprising a permanent-magnet rotor (28), a polyphase stator (22, 24, 26), and a polyphase full-bridge circuit that is assigned to the polyphase stator (22, 24, 26) and is provided with a plurality of bridge branches, each of which is provided with an upper field-effect power transistor (90, 108, 120) that is connected to a positive line (22) and a lower field-effect power transistor (96, 112, 124) that is connected to a negative line (100). Said motor (20) also comprises a rotor position sensor arrangement (30, 32, 34) which generates a plurality of mutually phase-shifted sensor signals (H1, H2, H3) when the motor (20) is in an operating state, the analogous value of said sensor signals (H1, H2, H3) depending on a rotor position-dependent physical variable that acts upon the rotor position sensor arrangement. Signals (54, 56, 58) that are derived from the rotor position sensor arrangement (30, 32, 34) are compared with a periodic sawtooth signal (u70) so as to obtain a plurality of comparative PWM signals (PWM1, PWM2, PWM3), the pulse duty factor of which is a function of the momentary value of the associated sensor signal (H1, H2, H3). The information contained in a comparative PWM signal is supplied to the two power field effect transistors (90, 96; 108, 112; 120, 124) of an associated bridge branch via one respective driver (86, 104, 116) in the form of signals that are in phase opposition in order to trigger said field effect transistors in a hard chopping mode and allow multiquadrant operation of the motor (20).

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