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(54) **SYNCHRONOUS MOTOR SENSORLESS CONTROL DEVICE**

(57) A PWM modulation unit (7) modulates a three-phase voltage instruction, which is input, on the basis of a PWM method, and outputs a gate signal to each phase switching element of an inverter (4). A high-frequency component arithmetic unit (8) calculates, at each time of switching of the inverter (4), a high-frequency component of a current occurring due to a voltage which is determined by the PWM modulation unit (7) and is output from the inverter (4). An index arithmetic unit (9) calculates,

as an index R proportional to a rotational phase angle estimation error, from the high-frequency component of the current in a $\gamma\delta$ coordinate system which rotates in sync with rotation of a synchronous motor (6). A rotational phase angle estimation unit (10) executes an estimation arithmetic operation of the rotational phase angle by using the index R. The invention provides a synchronous motor sensorless control apparatus which enables stable driving with simple adjustment, and does not cause an extreme increase in amount of arithmetic calculations.

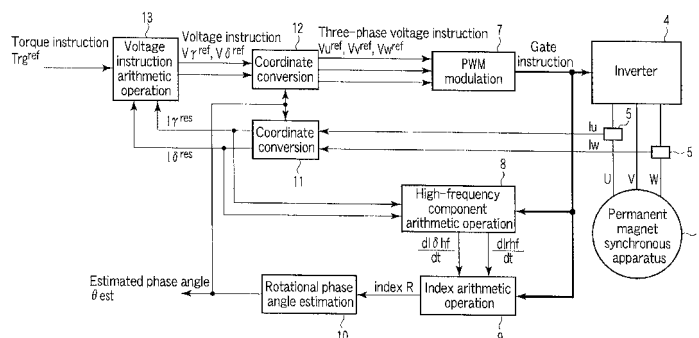


FIG. 2