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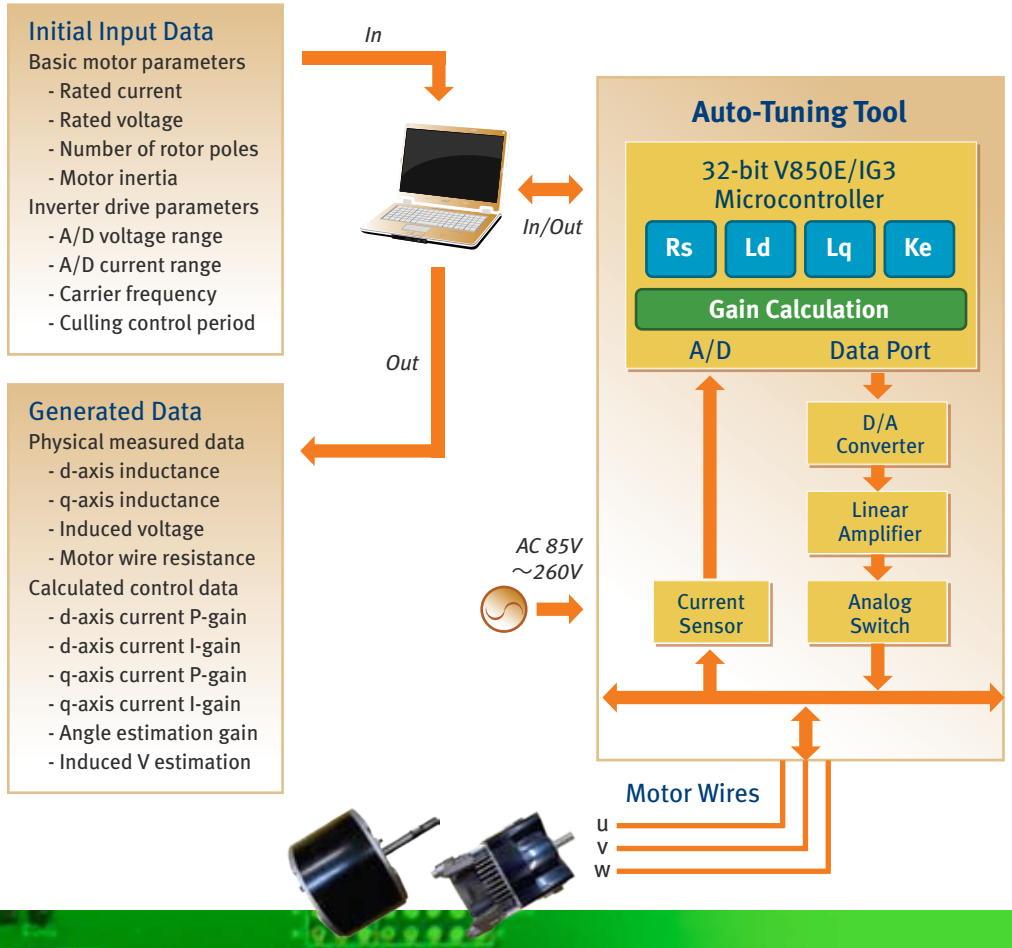
PMSM Motor Auto-Tuning Tool For 16-bit K0R/Ix3 MCUs

To efficiently drive a permanent-magnet synchronous motor (PMSM) using field-oriented sensorless vector control, parameters such as proportional/integral (PI) gains for motor current, speed control, motor rotor position and back electromotive force (BEMF) voltage must be adjusted.

When a target motor is analyzed, physical motor parameters such as motor inductance (Ld/Lq), BEMF voltage, and motor wire resistance must be measured by an LCR meter, an oscilloscope or another measurement tool as a first step. Afterward PI control parameters must be adjusted using a very complicated trial-and-error process.

NEC Electronics' auto-tuning tool is an integrated hardware and software solution that frees users from the complicated, difficult tuning process by providing automatic measurement of parameters and automatic generation of control parameters.

Users can thus build a motor control system very quickly for a target application, or evaluate and test characteristics of a prototype motor.



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Document No. 51094