

# FOC Motor Control Guide

DSC-Based Field-Oriented Control for PMSM/BLDC

Version 1.0

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# Outline

- FOC pipeline: Clarke/Park transforms, PI loops, SVPWM output.
- Sensing: phase currents, rotor position (QEI/Hall) or sensorless observers.
- Timing: ADC sampling synchronized to PWM; DMA for low jitter.
- Protection: over-current/voltage/temperature, watchdog cooperation.
- Tuning workflow and common pitfalls.

## Quick Reference

- Key terms: keep consistent with on-site taxonomy for SEO.
- Cross-links: LDO, Buck/Boost, Isolated Power, Supervisors & Watchdog, Sensing.
- Diagrams: reuse inline SVG styles from the web pages.
- Checklist: specs, selection tips, thermal/EMI notes, safety/automotive flags.