

VIPER Motor Control

High performance motor control for demanding battery powered applications

VIPER Motor Control is a fully customizable motor control solution for demanding applications where reliability, efficiency and compact integration are essential. It is designed for battery powered systems, highly dynamic loads and harsh environments.

The platform supports applications such as mobile machinery, power tools, hydraulic pump systems, forestry equipment, agricultural equipment and construction equipment. VIPER helps customers electrify their products with precise, efficient and robust motor control, even when load conditions change quickly.



Built for demanding applications

VIPER combines sensorless motor control, advanced algorithms and rugged hardware. Its fully potted IP54 design helps protect the electronics against water, dust and vibration. This makes VIPER suitable for outdoor equipment, mobile machines and battery powered hydraulic systems that need stable performance in real world conditions.

Typical applications

VIPER is suitable for applications where standard motor controllers reach their limits. Typical use cases include battery powered power tools, forestry and agricultural equipment, construction equipment, mobile hydraulic systems and compact machines with changing load conditions. Examples include chainsaws, wood splitters, winches, sprayers, hydraulic pump systems and other rugged field equipment.

Benefits at a glance

- Sensorless motor control based on Field Oriented Control
- High efficiency, up to 98 percent
- Power output up to 1 kW in the basic version, scalable
- Designed for 12 to 48V battery powered systems
- Supply voltage range from 8 to 80V
- Supports BLDC, PMSM, IPM and stepper motors
- Fully customizable to product design, space and performance needs
- Suitable for harsh environments and high dynamic loads
- Optional bootloader, PC tooling, configuration and logging
- Matlab and Simulink models available for control algorithm development

Technical Data ¹	Viper Motor Control
Product type	Customizable motor control solution
Power output	Up to 1 kW, scalable
Supply voltage	8 to 80V
Typical battery systems	12 to 48V
Phase current	68A to 68A
Efficiency	Up to 98 percent at 800 W
Motor types	BLDC, PMSM, IPM, stepper motors
Control method	3 phase sensorless sine wave control based on FOC
Protection	IP54 with potting
Hardware	Robust processor, intelligent FET driver, discrete power stage
Connectivity and I/O	Sensors, encoders, UART RS232, CAN bus, EEPROM, digital and analog I/O
Software options	Bootloader, software updates, PC tooling, configuration, logging
Development support	Full Matlab and Simulink models available
Customization	Customer specific functions, settings, diagnostics and performance requirements

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