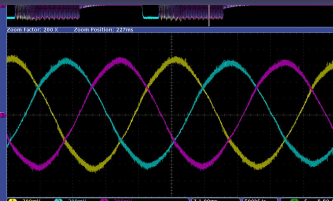


Advanced High Voltage FOC Motor Controllers packaged SWaPtimized for your application!

The Taurus 400 series is an advanced high voltage, high power, extremely efficient BLDC motor controller that can be customized to meet your needs. This controller, like others in our Taurus motor controller line, implements full FOC/SVPWM for highly efficient operation between 300VDC and 600VDC. Along with comms, packaging, connectorization, and software implementation, the power stage can be tailored precisely for the end user's application with ideal operation from 10kW-60kW for this voltage range. The controller provides isolated CAN 2.0 and RS-485 communications, giving you more feedback and control of your propulsion system. We can also pair with a communications processor to expand to redundant comms or more advanced interfaces like Ethernet and CAN-FD. Taurus 400 series devices can be custom packaged based on user needs, including special shapes, sizes, IP ratings and EMI requirements.

⏻ Efficient, High Power

The Taurus 400 series implements full four quadrant Field Oriented Control (FOC) through Space Vector Pulse Width Modulation (SVPWM). Paired with the latest SiC MOSFET technology, these controllers achieve exceptional motor and controller efficiency without the large torque ripple of standard 6-step (trapezoidal) commutation. No sensors, no problem. All Taurus controllers run an advanced sensorless estimator. Optionally, sensors can be added for seamless low RPM operation and parking.



⚡ Exceptional SWaP

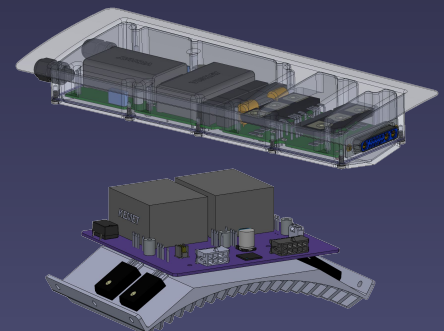
Existing high voltage industry solutions are big and heavy, often requiring large heat sinks and fans. Moving away from IGBTs and Electrolytics to higher end power components results in improved efficiency. This means less heat and an overall smaller and lighter controller due to a smaller heat sink. Working with our customers to tailor packaging and thermal management to their needs allows further reductions in size and weight.



⚙️ Customizable Solution

Along with an available software SDK, the Taurus 400 hardware IP can be tailored to various custom packages, including winglets, booms, etc.(see examples below).

Additionally, implementations for lower voltage/power have also been realized. Contact allocortech to get more information on customization.



Example above is a custom 400VDC implementation

Specifications

Operating Voltage	80 - 600VDC
Maximum Phase Current	120A RMS (Can be increased with NRE)
Switching Frequency	Up to 60kHz
Commutation Type	4 Quadrant Sinusoidal
Commutation Methods	Luenberger Estimator (LBG) HALL Only or Blended LBG QEP Only or Blended LBG
Recommended Max RPM	
12 Pole Pairs	10,000 RPM
10 Pole Pairs	12,000 RPM
7 Pole Pairs	17,000 RPM
CAN 2.0 Interface	
Max Bitrate	1Mbps
Isolation Voltage	±1.5kV
RS-485 Interface	
Max Bitrate	3Mbps
Isolation Voltage	±1.5kV
Update Rate	Up to 1KHz
Control Loops	Torque, RPM or Custom

Make Your Motors Smarter

Open-loop PWM throttle based ESCs are a thing of the past. The Taurus 400 motor controller enables customized control loops and tuning, along with bi-directional communications, to give your system more advanced control and monitoring.

Taurus Based Hybrid Generators

Four quadrant control means the Taurus controller supports full regen capabilities. Not only does this mean active regenerative braking, it means the Taurus 400 can be mated with a generator system to provide the basis of a hybrid electric powertrain.

Flexible Interfaces

The Taurus 400 supports a wide range hardware interfaces for communication as well as commutation and alignment support. These interfaces can be used for simple comms, or configurations with pitch control servos, etc. The entire software stack for the Taurus is built on the available source licensed allocore SDK, allowing fully tailored applications for customer control, comms, and other needs.

- Isolated CAN 2.0 Comms
- Isolated RS-485 Comms
- 6-Step HALL Sensor Inputs + index
- Quadrature Encoder

