



# EAGLE HARBOR TECHNOLOGIES

## Integrated Power Module Capabilities



### A complete solid-state switching solution

#### Key Features

- High current, solid-state switching at high frequency
- Designed for hard switching or inductive load driving
- Precision, low jitter gate drive produces clean switching waveforms
- Robust switching into a wide range of loads
- Parallel operation allows for even higher power switching
- Easily installed into larger systems
- High power density in 3U rackmount unit
- Optically isolated from user control system

Contact

**sky blue**  
microsystems

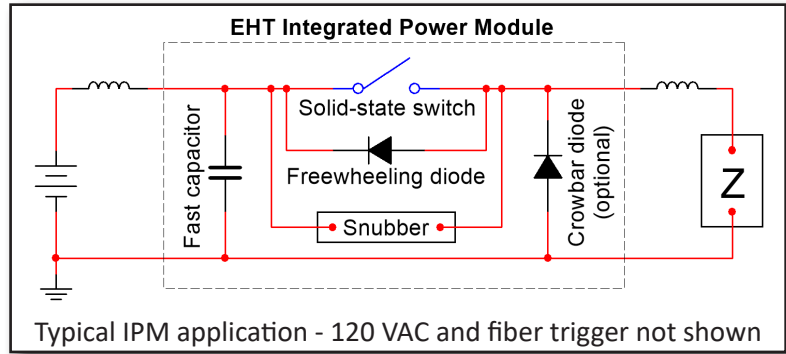
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## EHT Integrated Power Module

Originally designed to simplify precision magnetic control for the fusion science community, the EHT Integrated Power Module (IPM) is capable of hard switching high currents into resistive loads and driving crowbarred inductive loads. The EHT IPM includes fiber optically isolated gate drive, solid-state switches, freewheeling diodes, fast capacitors, snubbers (optional), and crowbar diodes (optional). This rackmount unit is easily integrated with customer DC supplies, capacitors, and loads.

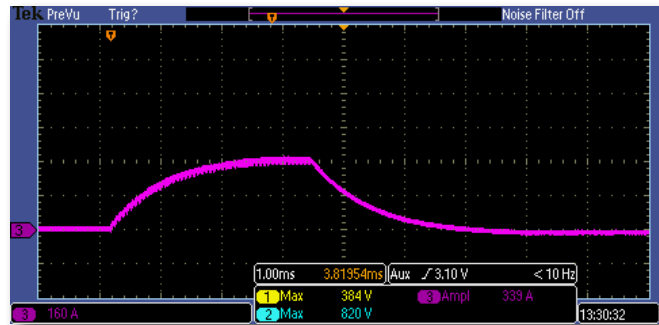
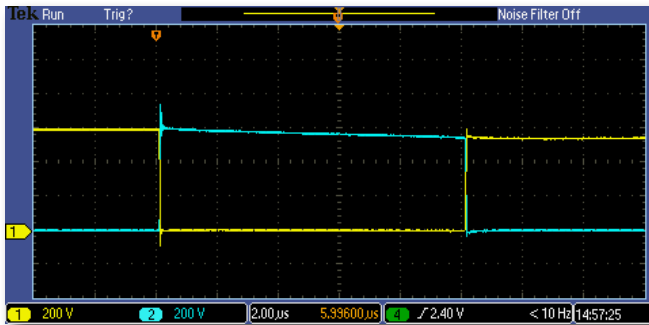


Below are sample specifications:

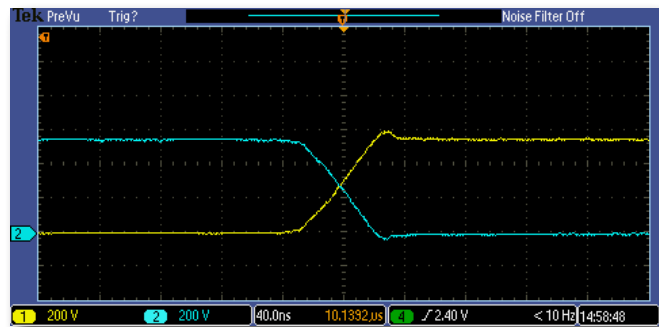
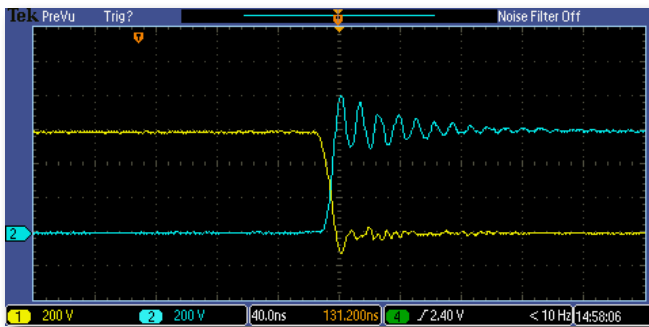
- Recommended maximum operating voltage: 800 V
- Absolute maximum voltage: 1200 V
- Single pulse current: 10 kA
- Magnet driver example: 2.5 kA at 100 kHz and 50% duty cycle for 10 ms burst
- Continuous current: 500 A at 30 kHz and 50% duty cycle (air cooled)
- Significant power increase with silicon carbide components and/or water cooling
- All control voltages are produced from 120 VAC that is isolated to 5 kV (10 pF).

Please contact Sky Blue Microsystems to discuss your application's specific needs.

## Sample Waveforms



Left:  $V_{ce}$  (yellow) and  $V_{Load}$  (blue) hard switching 600 V into 1  $\Omega$  resistive load with 10  $\mu$ s pulse width. Right: Current (340 A at peak) in 85  $\mu$ H inductor. PWM with 350 V at 30 kHz with 30  $\mu$ s pulse width (100 pulses).



Fast switch transitions:  $V_{ce}$  (yellow) and  $V_{Load}$  (blue) - 20 ns fall time (left) and 40 ns rise time (right). 600 V into 1  $\Omega$  resistive load, with 10  $\mu$ s pulse width.