



Specialists in Brushless Motor Control

Advanced Power Drives are specialists in motor control systems.

Every controller is engineered and manufactured in Sydney, Australia, enabling end-to-end control over the product lifecycle. Our vertically-integrated operation drives rapid innovation and ensures we deliver the highest quality motor controllers to our global customer base.

We pride ourselves on fast and comprehensive support for our solutions, with multiple direct channels of communication to our core engineering team.

Alongside our core offering of field-proven motor controllers, we offer complete system integration services. We partner with customers to design, manufacture and certify bespoke powertrain solutions for the most demanding applications. We also design solutions for battery management, DC-DC conversion and solar maximum power point tracking.

Company Overview

10000+ aircraft powered by APD

46 countries served

10+ years experience in Aerospace & Defence

THE APD ADVANTAGE

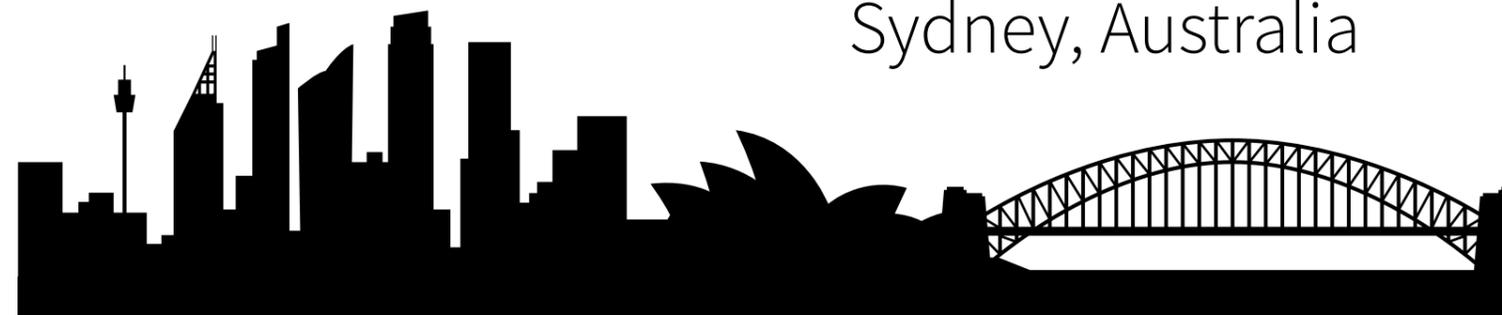
- Unrivalled Performance
- Extreme Power Density
- High Reliability

CUSTOM OPTIONS

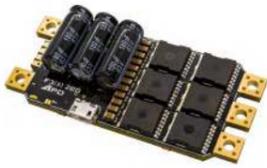
- Field Oriented Control
- SiC/GaN
- Sensored/Sensorless
- High Voltage(500V+)

Every ESC proudly designed and manufactured in

Sydney, Australia



Product Overview



F - SERIES



HV - PRO



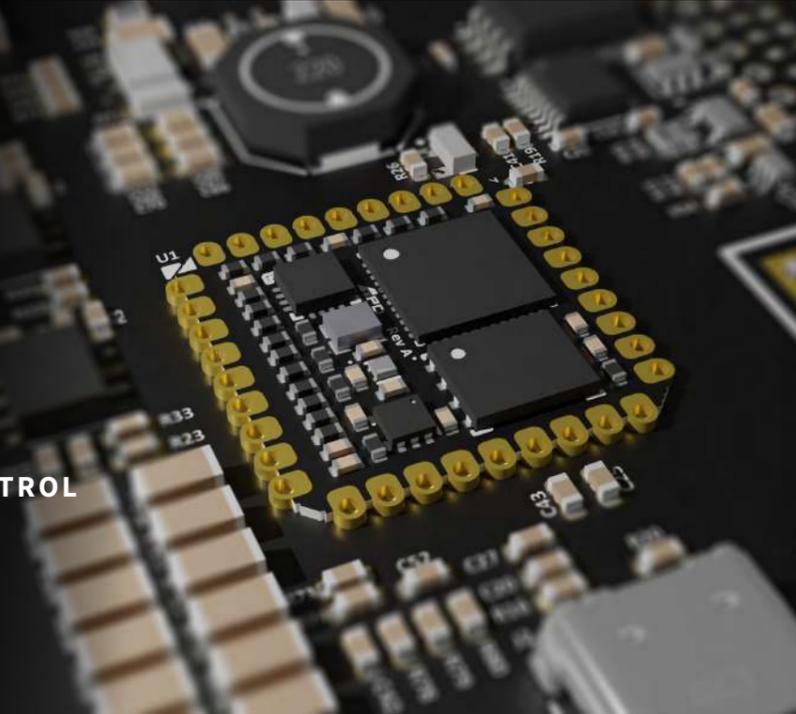
UHV

	80F3	120F3	200F3	HV14	HVP16	HVP20	HVP24	UHV20	UHV28
Max. Voltage (V)	35	50	60	60	68	85	100	85	120
Min. Voltage (V)	15			15				15	
Continuous Current (A) - 60s	80	120	200	240	400	300	200	400	300
Burst Current (A) - 1s	140	200	300	360	600	450	300	450	400
Max. Continuous Power (W)	2800	6000	9000	12000	15000			25000	
Max. Burst Power (W)	4900	10000	15000	18000	20000			35000	
Telemetry Protocols	UART Dshot			UART				UART	
Input Protocols	PWM Dshot Proshot		PWM Dshot	PWM				PWM	
Drive Type	Sensorless			Sensorless				Sensorless	
Onboard Logging (hours)	Telemetry Only			1-400				1-400	
Dimensions (mm)	50 L 22 W 6 D	59 L 29 W 14 D	73 L 34 W 12 D	96 L 52 W 22 D	96 L 52 W 26 D			180 L 100 W 27 D	
Weight (g)	10	20	36	155	260			740	

INTRODUCING

GateKeeper

THE NEXT GENERATION OF MOTOR CONTROL



Over 3 years in development, GateKeeper is a unified technology platform that underpins our next generation of motor controllers. It builds upon the best features of our existing products, adding CAN, sensored drive, IP ratings, extended onboard logging and enhanced current measurement.

It forms a proven foundation for our upcoming COTS and bespoke inverters, including those based on SiC and GaN bridges.

microDRIVE miniDRIVE megaDRIVE

160g	350g	3500g
Variants: 35V 80A 50V 120A	Variants: 60V 300A 100V 200A	Variants: 500V 200A air-cooled 500V 400A water-cooled

These units are still in development; final values may change.

JOIN THE WAITING LIST
Get in touch at contact@powerdrives.net

F - SERIES

The F Series ESCs are designed from the ground up for maximum power-to-weight efficiency, while maintaining a strong vehicle integration capability. Operating on a 32-bit architecture allows for industry-leading RPM response across a wide variety of motor configurations. The units are field-proven in systems ranging from military and commercial vehicles, to medical, consumer and space applications.

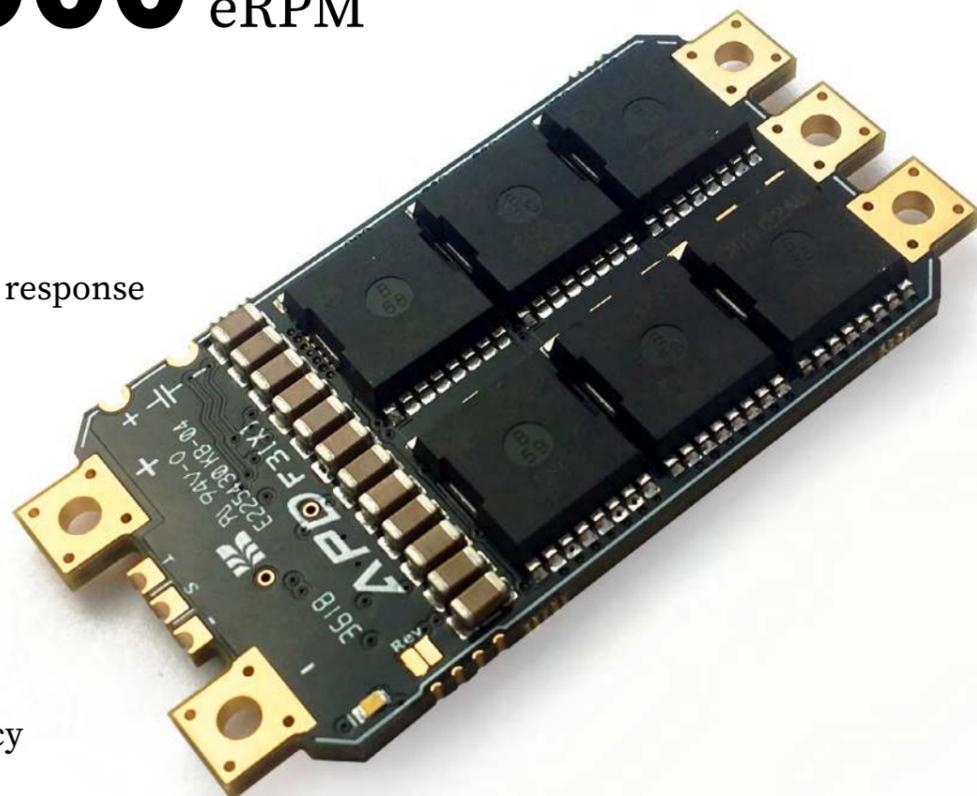
80F3	8S (35V) max. 80A continuous 140A burst 4.9kW peak	120F3	12S (50V) max. 120A continuous 200A burst 10kW peak	200F3	14S (60V) max. 200A continuous 300A burst 15kW peak
-------------	---	--------------	--	--------------	--

up to **750000** eRPM

10 ms
full throttle transient response

up to **9** kW
continuous

10 μ s
input to output latency



HV - PRO

Punching well above its weight, the HV Pro is our highest power density controller. With peak power ratings up to 20kW in a 260g, 130cc package, these units are optimised for high-powered bursts where space is at a premium. A high-resolution throttle input combined with multiple drive modes provides a wide range of options for functionality. Complete configurability alongside datalogging allows for the most effective setups.

14S	14S (60V) max. 240A cont. 360A burst 18kW peak.	16S	16S (68V) max. 400A cont. 600A burst 20kW peak	20S	20S (85V) max. 300A cont. 450A burst 20kW peak	24S	24S (100V) max. 200A cont. 300A burst 20kW peak
------------	--	------------	---	------------	---	------------	--

up to **1000000** eRPM

up to **20** kW

10 km
service ceiling





Powered by a 32-bit ARM architecture, the UHV ESC is a versatile controller for heavy lift applications, robust enough for even the most challenging conditions. It is designed to deliver fast throttle response that is linear over the complete output range. A wide variety of high power applications are supported with features such as Synchronous Rectification maximising efficiency.

20-400

20S (85V) max.
400A continuous
450A burst
35kW peak

28-300

28S (120V) max.
300A continuous
400A burst
35kW peak

10 μ s

latency for maximum performance

up to **35** kW

up to **400** hrs
data logging



Selected Projects



Cobalt UAS

CUSTOM HV SERIES ESC

The Cobalt UAS is a VTOL platform designed and manufactured by American-based company Spektreworks. The platform supports versatile mission parameters, with endurance and heavy payload configurations. It is optimised for minimal operational footprint.

Our HV Series motor controllers were rigorously tested by the Spektreworks team against other controllers from leading manufacturers. APD worked with the team to incorporate customisations, developing a robust solution with proven flight reliability.

Aergility ATLAS UAV

CUSTOM SILICON CARBIDE

APD has worked closely with Aergility to develop a ground-up bespoke inverter for their patented Managed Autorotation technology in the ATLAS Cargo UAV.

Utilising cutting-edge Silicon Carbide switching technology, this inverter is capable of driving 400V 150A at over 98% efficiency. It offers sensed control, with sensorless fallback, ensuring the highest levels of aircraft safety. The controller receives commands and outputs telemetry with a customised CAN specification.

It weighs under 2kg in flight-ready configuration.



See more of our bespoke work:

<https://powerdrives.net/projects>

Services

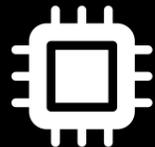
When you need to take your project to the next level, we deliver end-to-end consultancy over the entire electronics lifecycle.

World-class Aerospace & Defence clients entrust us with their most complex projects. We offer a comprehensive range of electronics services, ranging from initial product specification through all stages of engineering, including R&D, prototyping, manufacturing and certification.

AREAS OF EXPERTISE



Motor Control



Embedded Systems



Electronics
Manufacturing



miniDRIVE
Coming Soon.



Ready for a sea change?

Come and join us in one of the most beautiful cities in the world!

We're deeply passionate about powering the electric vehicles of tomorrow, across air, land and sea. We're always looking for talented people to join us.

Check out our open positions!

<https://powerdrives.net/careers>

What you'll find at APD is a supportive, exceptionally talented team and a workplace designed to be genuinely enriching. We're committed to individual flexibility; whatever form that takes for you, just ask, and we'll sort something out.

You can also drop us a line at contact@powerdrives.net.

We'd love to chat.

Let's start a conversation.

You'll be speaking directly to our engineering team about the products they develop, no sales tactics involved. We'll make sure you get the right product for your application.

contact@powerdrives.net

+61 2 7804 4273

